

COMMUNITY HEALING: CHILD MALTREATMENT IN HILO

A DARCH PROJECT SUBMITTED TO THE GRADUATE DIVISION OF
THE UNIVERSITY OF HAWAI'I AT MĀNOA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF ARCHITECTURE

MAY 2015

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Keywords: Architecture, Child Maltreatment, Child Abuse

ACKNOWLEDGEMENTS

I would like to show my gratitude to the East Hawai'i Children's Justice Center for sharing their time, experience, and vision. I would also like to thank the professionals in Hilo who gave me their insights during interviews. I owe particular gratitude to those who served on my graduate committee: Martin Despang, John Barile, Susan Chandler, and Brian Takahashi, for their many ideas and guidance. Finally, I would like to thank those who have given me support during this time: MaRy Kim-Johnson, Joyce Noe, Lynnette Sievert, Daniel Brown, Annie Brown, Amber Imai-Hong, Daniel Hong, Carol Severence, Craig Severence, Denise Johnson, and Jerry Johnson.

ABSTRACT

Every year, child maltreatment costs the United States billions of dollars in healthcare costs¹. Child maltreatment has life-long physical, psychological, and behavioral consequences for the victims. This problem is particularly a problem in the County of Hawai'i, where the majority of residents believe child abuse is a major problem in the community and almost half of adult residents know someone who was abused as a child, or suffered abuse themselves².

This project looks at child maltreatment in Hawai'i, with a focus on the Hilo area in the County of Hawai'i. The goal of this research is to come to an understanding of how building design can affect child maltreatment risk, and how it can be used to both prevent and heal the effects of child maltreatment in families. This research will look at child maltreatment in the country in general, child maltreatment in Hawai'i traditionally and historically, child maltreatment in Hawai'i in the present and future, how the built environment effects people, and design parameters from related types of buildings.

These separate topics led to the same conclusion of what elements need to be incorporated into the design of a building in order to ensure the well-being of building users. These design elements are: a connection with nature, use of daylight, balance between encouraging social interaction and privacy, security, flexibility and transformability of spaces, and user control of their environment.

¹ Richard J Gelles and Staci Perlman, *Estimated Annual Cost of Child Abuse and Neglect*, (Chicago: Prevent Child Abuse America, April 2012), http://www.preventchildabuse.org/downloads/PCAA_Cost_Report_2012_Gelles_Perlman_final.pdf. (accessed February 12, 2013).

² Hawai'i Children's Trust Fund and the Joyful Heart Foundation, *Perceptions of Child Abuse and Neglect in Hawai'i: A Comprehensive Study of Hawai'i residents July 2011*, <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>.

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INTRODUCTION

One estimate of the cost of child maltreatment is that it costs the United States \$220 million every day, which comes out to over \$80 billion spent every year³. Other reports have placed this number as high as \$200 billion or \$460 billion depending on how child maltreatment is defined⁴. However, Prevent Child Abuse America estimates that child maltreatment prevention saves tax-payers \$104 billion every year⁵. These costs show the immensity of the cost of child maltreatment on American society as a whole.

This project looks at child maltreatment in Hawai'i, with a focus on the Hilo area in the County of Hawai'i. According to statistics, the majority of residents in the County of Hawai'i believe that child maltreatment is a major problem in the community⁶. However, these residents also feel that they have trouble recognizing the warning signs of child abuse, and are afraid that revenge will be sought by the child's family members if they do report the abuse⁷. Almost half of adults in the County of Hawai'i know someone who is a victim of child abuse, and 20% of them were victims themselves⁸. These statistics reflect the growing pressure for new solutions to child maltreatment in Hawai'i.

The goal of this research is to come to an understanding of how building design can affect child maltreatment risk, and how it can be used to both prevent and heal the effects of child maltreatment in families. This research will look at child maltreatment in

³ Gelles and Perlman, *Estimated Annual Cost of Child Abuse*.

⁴ Xiangming Fang et al., "The Economic Burden of Child Maltreatment in the United States and Implications for Prevention," *Child Abuse and Neglect* 36, no. 2 (February 2012): 161, doi: <http://dx.doi.org/10.1016/j.chiabu.2011.10.006> (accessed February 4, 2014).

⁵ U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth, and Families, Children's Bureau, Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*, (Washington, D.C.: Child Welfare Information Gateway, July 2013), https://www.childwelfare.gov/pubs/factsheets/sp_long_term_consequences.cfm (accessed February 4, 2014).

⁶ Hawai'i Children's Trust Fund and the Joyful Heart Foundation, *Perceptions of Child Abuse and Neglect in Hawai'i: A Comprehensive Study of Hawai'i residents July 2011*, <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>.

⁷ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*.

⁸ Ibid, 32.

the country in general, child maltreatment in Hawai'i traditionally and historically, child maltreatment in Hawai'i in the present and future, how the built environment effects people, and design parameters from related types of buildings.

To discover this information, this project will use three methods of research. These are looking at existing literature and history, case studies, and interviews with professionals who work with child maltreatment. Comparing the analysis of the data from these three areas should produce the design criteria and parameters for what kind of architecture the Hilo community needs for one or more of their existing programs to serve the community in terms of child abuse.

This project will combine the research that has already been conducted on how design can increase the physical well-being of people in related types of spaces and how the physical environment can effect rates child maltreatment. This project will explore the possible design parameters for designing spaces that both prevent and facilitate healing through increasing the well-being of the building's users.

CHAPTER 1. CHILD MALTREATMENT

What is Child Maltreatment?

The Center for Disease Control (CDC) defines child maltreatment as, “any act or series of acts of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child.”⁹ In other words: child maltreatment is anything a parent intentionally does, or fails to do, that can, will, or has already harmed a child. There are four types of child maltreatment: physical abuse, sexual abuse, psychological abuse, and child neglect.

In 1974, Congress passed the Child Abuse Prevention and Treatment Act (CAPTA), which provides Federal funding to State programs in the prevention, assessment, investigation, prosecution, and treatment activities related to child maltreatment¹⁰. According to the Child Welfare Information Gateway, CAPTA provides the minimum definition of child maltreatment, “serious harm (neglect, physical abuse, sexual abuse, and emotional abuse or neglect) caused to children by parents or primary caregivers, such as extended family members or babysitters.” The definition also includes the harm that a caregiver does not prevent or allows to happen to a child¹¹.

CAPTA provides grants to public and non-profit organizations for programs and projects with the same goals. On the Federal scale, CAPTA also calls for the Federal government to support research, evaluation, technical assistance, and data collection activities related to child maltreatment.

Statistics on Child Maltreatment

The best way to start to familiarize oneself with the present child maltreatment rates in the state and country is to look at the annual reports on child maltreatment

⁹ National Center for Injury Prevention and Control, *Child Maltreatment Surveillance*.

¹⁰ U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth, and Families, Children’s Bureau, Child Welfare Information Gateway, *How the Child Welfare System Works*, (Washington, D.C.: Child Welfare Information Gateway, February 2013), <https://www.childwelfare.gov/pubs/factsheets/spcpswork.cfm> (accessed April 15, 2014), 1.

¹¹ Child Welfare Information Gateway, *How the Child Welfare System Works*, 2

from both. The national report is the data received from the National Child Abuse and Neglect Data System (NCANDS), which is the collection of data from the Child Protective Services in each state¹². This allows for a comparison between the data in particular states to the data of the country as a whole. These annual reports also compare the data from different years, showing trends over time.

One must note that while these reports do give quantifiable data, there is a shortcoming. The data collected by the Child Protective Services is based on the amount of reports that they receive, and therefore do not count the cases of child maltreatment that have not been brought to their attention. By comparing the data of different years, it does not necessarily show whether the amount of cases of child maltreatment itself is growing or lessening, it shows the trends in reporting. This weakness is shared with the annual reports put out by the State of Hawaii on the state's child maltreatment data.

A second point that must be taken into account is that not every state reports all of the categories of data, and some categories also include the data from the District of Columbia and Puerto Rico. This can also lead to some inconsistency in the exact numbers of reports and demographic data. Despite this inconsistency, the statistics of the annual report does give some sense of scale to the issues shown.

The 2011 national annual report on child maltreatment shows the national estimate of unique victims has decreased over the past 5 years¹³. A unique victim is a single child even if they are the victim of multiple reports in the same time frame. However, this does not necessarily mean that the rate of child maltreatment has been lessening, though the rates of unique children who have received a CPS response have decreased in the last 5 years¹⁴. The data shows that there has been a decrease in number of unique victims, based on whose cases have been reported.

In opposition to the national trends, the State of Hawai'i and the County of Hawai'i do not show this trend of increasing number of reports and decreasing number

¹² U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau, *Child Maltreatment 2011*, <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>.

¹³ Children's Bureau, *Child Maltreatment 2011*, 19.

¹⁴ Ibid, 19.

of victims. The annual report from the state shows the duplicated count of children, meaning that a single child may be counted multiple times, as it is the total number of reports that are looked at, and not the unique individuals. The state report does not show data for the number of unique victims, so analysis can only look at the number of reports the state received annually, including cases of a child as the subject of multiple reports. Both the duplicated number of victims and total number of reports has fluctuated in the last five years, though in general shows a decline¹⁵.

The County of Hawai'i shows a similar trend in data to that of the state in the past five years. There is a marked decrease in the number of reports that CPS has received in the last five years¹⁶. Meanwhile, the number of confirmed cases, meaning the duplicated number of victims, has fluctuated, showing neither a positive or negative trend in the data¹⁷.

This difference in trends between the nation, state, and county could be a result of differing perceptions of the residents of the nation, state, and county on child abuse. If the perception of the community is the reasons for the lack of reporting, then it could be the start of understanding what the county needs in terms of a building program to alleviate the child maltreatment problem.

Personal Impacts of Child Maltreatment

The effects of abuse on children have long-lasting consequences that can affect victims for the rest of their lives.

Physical

In addition to the short-term effects of physical abuse, victims of all kinds of abuse and neglect also face long-term health consequences. According to the National Survey of Child and Adolescent Well-Being (NSCAW), 28% of children victims had

¹⁵ State of Hawaii Department of Human Services Management Office, *A Statistical Report on Child Abuse and Neglect in Hawaii: 2011*, <http://humanservices.hawaii.gov/wp-content/uploads/2013/01/2011-CAN-report-print.pdf>, 6.

¹⁶ State of Hawaii, *A Statistical Report on Child Abuse*, 10.

¹⁷ Ibid.

chronic health conditions three years after a maltreatment investigation¹⁸. Children who suffer from neglect are at a higher risk for a number of health conditions including diabetes, adolescent obesity, and poor lung function. Child victims of physical abuse are at a higher risk of getting diabetes, and of suffering from malnutrition¹⁹.

These higher risks of health problems continue into adulthood. Adults who suffered from abuse in childhood are more likely to have cardiovascular, lung, and liver disease. They are at a higher risk for hypertension, diabetes, asthma, and obesity²⁰.

Besides the physical health consequences, child maltreatment has been shown to cause impaired brain development. Abuse can cause important regions of the brain to form incorrectly or fail to form at all, impairing the child's development. This impaired development has long-term consequences such as negatively affecting cognitive, language, and academic abilities, as well as having a connection with mental health disorders²¹. The disrupted neurodevelopment caused by abuse can lead to hypervigilance, anxiety, and behavior impulsivity²².

Psychological

The emotional consequences of child maltreatment, which include feelings of isolation, fear, and an inability to trust, can turn into life-long psychological problems. These problems can include low self-esteem, depression, and relationship difficulties²³. Child Welfare Information Gateway gave four examples of long-term psychological consequences of child maltreatment.²⁴ These include difficulties during infancy, poor mental and emotional health, cognitive difficulties, and social difficulties.

Difficulties during infancy relates directly to infants that are put into the foster care system. Nearly half of these infants have some form of cognitive delay, lower IQ

¹⁸ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*.

¹⁹ Ibid, 3.

²⁰ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*.

²¹ Ibid, 4.

²² Ibid.

²³ Ibid.

²⁴ Ibid.

scores, language difficulties, and neonatal challenges²⁵. Childhood trauma like physical or sexual abuse is a risk factor for psychiatric disorders such as borderline personality disorder, depression, and anxiety²⁶. Likewise, children who suffer from neglect are more likely to develop antisocial behaviors, borderline personality disorders, attachment issues, affectionate behavior with people they do not know or do not know well, aggression, or the inappropriate modeling of adult behavior²⁷. Child maltreatment in general can impact the development of a child's ability to regulate their emotions, a problem which can extend through adolescence and adulthood²⁸.

Children with substantiated reports of maltreatment are not only at risk to suffer from psychological problems but also generally suffer academically in comparison with their peers. 10% of school-aged children and youth show risk of cognitive problems or low academic achievement, 43% had emotional or behavioral problems, and 13% had both²⁹.

Behavioral

An important fact to keep in mind is that not all children who suffered from abuse or neglect will have negative behavioral consequences, it is just more likely. According to NSCAW, more than half of youth who are reported to have been abused are at risk for emotional or behavioral problems³⁰. These youth are at an increased risk of grade repetition, substance and alcohol abuse, delinquency and criminality, truancy, pregnancy, sexually transmitted diseases, and sexual risk taking behavior.

The risks for children who have suffered from abuse continue into adulthood. Victims of child sexual abuse are at an increased risk of suffering from rape in adulthood, the rate of risk increasing depending on the severity of their abuse

²⁵ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*, 4.

²⁶ Ibid.

²⁷ Ibid, 5.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

experience(s)³¹. Adults who suffered from child maltreatment as children also have an increased risk for displaying abusive behavior towards others.

Societal Impacts of Child Maltreatment

The majority of resources on the societal consequences of child abuse look at the effects through an economic lens. Things like juvenile and adult crime reference to the loss of potential, the dollar cost loss from crime, and the cost of running the justice system. These economic effects are divided into direct and indirect costs.

Direct costs are the costs that directly affect child abuse such as the hospitalization of injured children, psychological treatment, and operating the child welfare system³². Indirect costs are the costs that come about as a side effect of child maltreatment, such as special education to deal with developmental delays and the costs associated with juvenile delinquency³³. Indirect costs include: special education, juvenile delinquency, mental health and health care, the adult criminal justice system, lost productivity, early intervention, and emergency/ transitional housing³⁴.

According to the Child Welfare Information Gateway, all 8 categories of adverse childhood experiences are associated with an increased likelihood of employment problems, financial problems, and absenteeism; all of which leads to an increase in the indirect costs of child maltreatment³⁵. The Center for Disease Control believes the estimate of the economic impact of child abuse can help to increase awareness of the severity of child maltreatment, as well as giving an additional tool for the evaluation of programs to prevent and reduce child maltreatment³⁶.

According to Prevent Child Abuse America, child abuse costs the United States \$220 million every day. These costs are the result of investigations, foster care, medical

³¹ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*, 5.

³² Gelles and Perlman, *Estimated Annual Cost of Child Abuse*, 4.

³³ Ibid, 4.

³⁴ Gelles and Perlman, *Estimated Annual Cost of Child Abuse*, 3.

³⁵ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*, 6.

³⁶ Fang et al., "Economic Burden of Child Maltreatment," 157.

and mental health treatment, special education, juvenile and adult crime, chronic health problems, and other related expenses³⁷. The organization projected that in the year 2012, the nation would have to spend \$80 billion on the issue of child maltreatment³⁸.

The organization takes a firm stance that more effort needs to be put forth into the prevention of child maltreatment, using the annual costs associated with child maltreatment as evidence that there is more to the problem of child maltreatment than ethical concerns. Gelles and Perlman, the authors of the article's content, based their cost estimation on past scenarios that previous studies have used³⁹.

One of the issues with Gelles and Perlman's cost estimate is that it cannot be compared with earlier estimates to reflect a change in cost over time. They changed elements of their scenario, so that it no longer reflects the same values as earlier attempts. Nonetheless, this article does help to quantify the problem of child abuse in a different way than through direct statistics.

The article also suggested a way to make up for the problems with the annual reports, which only measure the amount of reporting versus the amount of actual child maltreatment cases. The article suggests a correlation between child abuse victims and incidence of juvenile delinquency and adult crime⁴⁰. Using this information, it is now possible to go back and check incidents of reported juvenile delinquency and adult crime rates, to that of the reported child abuse cases over time to draw a correlation between the two rates.

An article written by the CDC in the international journal *Child Abuse and Neglect* is a more reliable source for the data on the economic impact Child Abuse has on the United States. The article did point out other studies that had looked into the economic impact of child maltreatment were positive in that they brought more awareness to the issue, but they still had shortcomings⁴¹. These included lack of transparency in data used during estimation, calculation mistakes, methodological errors, and new evidence about

³⁷ Gelles and Perlman, *Estimated Annual Cost of Child Abuse*.

³⁸ Ibid.

³⁹ Ibid, 3.

⁴⁰ Ibid, 4.

⁴¹ Fang et al., "Economic Burden of Child Maltreatment," 157.

healthcare costs of victims in childhood and adulthood, as well as the impact on adult victim's earnings⁴². The study by the CDC reported their exact methodology in generating their estimates, including how and where they received their data⁴³. This builds up a credibility in their results that other studies, such as Gelles and Perlman, may not achieve to such a high standard.

The CDC study made their estimates from a societal perspective, and based their estimates on the US dollar using 2010 as their economic reference year⁴⁴. According to their results the average life time cost of nonfatal child maltreatment per victim is \$210,000 in 2010 US dollars⁴⁵. Also, the total lifetime costs of child maltreatment from just the new victims reported in 2008 would be between \$200 billion and \$460 billion depending on which harm standard was used⁴⁶. A harm standard is the definition that specifies the severity of harm that has occurred for a particular kind of abuse to be counted for statistical purposes.

These huge costs can be mitigated through the means of programs dedicated to preventing child maltreatment. Prevent Child Abuse America estimates that child maltreatment prevention saves tax-payers \$104 billion every year⁴⁷. The Schuyler Center for Analysis and Advocacy has worked out that for every \$1 spent on home visits, there is a \$5.70 return on the investment⁴⁸. Prevention programs like home visits increase monthly earnings while lowering the rates of confirmed reports of child maltreatment, visits to the emergency room, arrest rates for mothers, and enrollment in temporary assistance for needy families⁴⁹.

⁴² Fang et al., "Economic Burden of Child Maltreatment," 157.

⁴³ Ibid, 158 – 160.

⁴⁴ Ibid, 158.

⁴⁵ Ibid, 160.

⁴⁶ Ibid, 161.

⁴⁷ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*.

⁴⁸ Ibid.

⁴⁹ Ibid, 6.

Child Welfare System in General

The child welfare system is a group of state and federal services whose goal is to ensure the safety, future achievement, and well-being of children while also strengthening families⁵⁰. The States have the primary responsibility over child welfare services, while the Federal Government focuses on providing funding for programs and legislative initiatives⁵¹. In general, the child welfare system is made up of many organizations in the community that work together to strengthen families and to keep children safe. Each State has public agencies such as the department of social services or child and family services. These departments collaborate with private community-based organizations to provide services such as in-home family prevention services, foster care, residential treatment, mental healthcare, substance abuse treatment, parenting skills classes, domestic violence services, employment assistance, and financial or housing assistance⁵².

While the specific procedures of child welfare systems vary greatly from state to state, they all typically provide the same core services. These services are: to receive and investigate reports of possible child abuse and neglect, provide services to families to help in the protection and care of their children, to arrange for children to live with kin or foster families when they are not safe at home, and to arrange for the reunification, adoption, or other permanent family connections for children leaving foster care⁵³.

Actions Once Allegation Made:

The process for handling child abuse allegations has two steps: the screening and the response⁵⁴. Any concerned person can report suspicions of child abuse or neglect, though most reports are made by “mandatory reporters”, people who are required by state law to report suspicions of abuse including law enforcement officers, school

⁵⁰ Child Welfare Information Gateway, *How the Child Welfare System Works*, 1

⁵¹ Ibid.

⁵² Ibid, 2-3.

⁵³ Ibid, 1

⁵⁴ Children’s Bureau, *Child Maltreatment 2011*, 5.

teachers, and healthcare professionals⁵⁵. Allegations are made to agency hotlines or intake units that then use a screening process to determine if the report should be followed up or not. These intake units are generally part of child protective services (CPS) and the screening process is conducted by CPS workers⁵⁶. If there is sufficient information to suggest that an investigation is warranted then it is “screened in”. If there is not sufficient information on which to follow up, or does not meet the State’s legal definition of abuse or neglect then the allegation is “screened out”⁵⁷. Once the allegation makes it past screening there are a number of different responses, although the majority is followed by investigations⁵⁸.

The first step in the response is usually the investigation. This is done in a number of different ways, such as a home visit by a social worker who then interviews the adults and children of the household including the victim and their siblings⁵⁹. Children are usually not removed from the home unless there is an emergency situation, which Crosson-Tower defines as, “imminent danger of physical harm to the child, a dangerous home situation, or abandonment of the child.”⁶⁰ If there is an immediate danger to the child, then they may be moved to a shelter, foster home, or a relative’s house while the investigation and possible court proceedings are taking place⁶¹.

After the investigation an appropriate response is settled on and implemented. There are typically two findings that a CPS caseworker makes: whether the case is unsubstantiated or substantiated⁶². Substantiated cases are those in which it is believed that an incident of child abuse, as defined by state law, has occurred⁶³. Once a case has been deemed substantiated the agency will initiate a court action if it is necessary to

⁵⁵ Child Welfare Information Gateway, *How the Child Welfare System Works*, 3.

⁵⁶ Child Welfare Information Gateway, *How the Child Welfare System Works*, 3.

⁵⁷ Ibid.

⁵⁸ Children’s Bureau, *Child Maltreatment 2011*, 5.

⁵⁹ Cynthia Crosson-Tower, *Understanding Child Abuse and Neglect*. 5th ed. (Boston: Allyn and Bacon, 2002), 225-235.

⁶⁰ Crosson-Tower, *Understanding Child Abuse and Neglect*, 230.

⁶¹ Child Welfare Information Gateway, *How the Child Welfare System Works*, 4.

⁶² Ibid.

⁶³ Ibid.

keep the child safe, based on the level of risk that there will be future incidents⁶⁴. These levels of risks are characterized as no or low risk, low to moderate risk, and moderate to high risk.

No or low risk cases are when the event was a one-time incident and the child is considered to be safe or have a low risk of future incidents. In these cases the family's case may be closed with no services, or services will be provided through community-based services rather than through the child welfare agency⁶⁵. These services may include in-home services such as parent education, safety planning, and counseling or concrete help from community services such as therapy, parent training, and support groups⁶⁶.

In the low to moderate risk level, cases may be referred to community-based or voluntary in-home child welfare services if the CPS caseworker believes that the family and the child's safety would benefit from such services. In moderate to high risk cases the family may still be referred to these programs. However, if the services are refused and the juvenile dependency court determines that abuse or neglect has occurred, the court could require that the family cooperates with in-home services as long as it is deemed safe for the child to remain at home⁶⁷. The court may order the child's removal from the home and placement with a relative or foster care if they have been seriously harmed, or their safety is threatened⁶⁸.

If a child maltreatment case goes to court, an adjudicatory hearing is held where the court decides whether or not child maltreatment occurred, and whether the case should continue to be under the jurisdiction of the court. If this is deemed to be the case, the court may order the primary caregiver to comply with the services necessary to alleviate the abuse or neglect⁶⁹.

⁶⁴ Child Welfare Information Gateway, *How the Child Welfare System Works*, 4.

⁶⁵ Ibid, 5.

⁶⁶ Ibid, 6.

⁶⁷ Ibid, 5.

⁶⁸ Ibid.

⁶⁹ Ibid, 4-5.

If during an investigation the risk to the children involved is considered low, then some jurisdictions use an alternative response system to the typical one described above. The CPS caseworkers in these jurisdictions instead focus on working with the families to assess their strengths, resources, and difficulties, and what services they need; rather than gathering evidence to confirm child abuse or neglect⁷⁰.

The consequences for parents who are found to have abused or neglected a child are also dependent on the severity of the case. Caregivers are generally offered or are required to participate in support and treatment services that will help keep their children safe⁷¹. In more severe cases, or fatalities, the police are called to investigate and may file charges in criminal court against the caregiver. Whether or not criminal charges are filed, the name of the person committing the abuse or neglect in a confirmed case may be placed on a state child maltreatment registry. These registries are usually confidential for child protective purposes, but may be used in background checks for professions that involve working with children⁷². Figure 1.1 shows a flow chart for the steps taken following a child maltreatment report.

⁷⁰ Child Welfare Information Gateway, *How the Child Welfare System Works*, 4.

⁷¹ Ibid, 5.

⁷² Ibid, 6.

A Child's Journey through the Child Welfare System

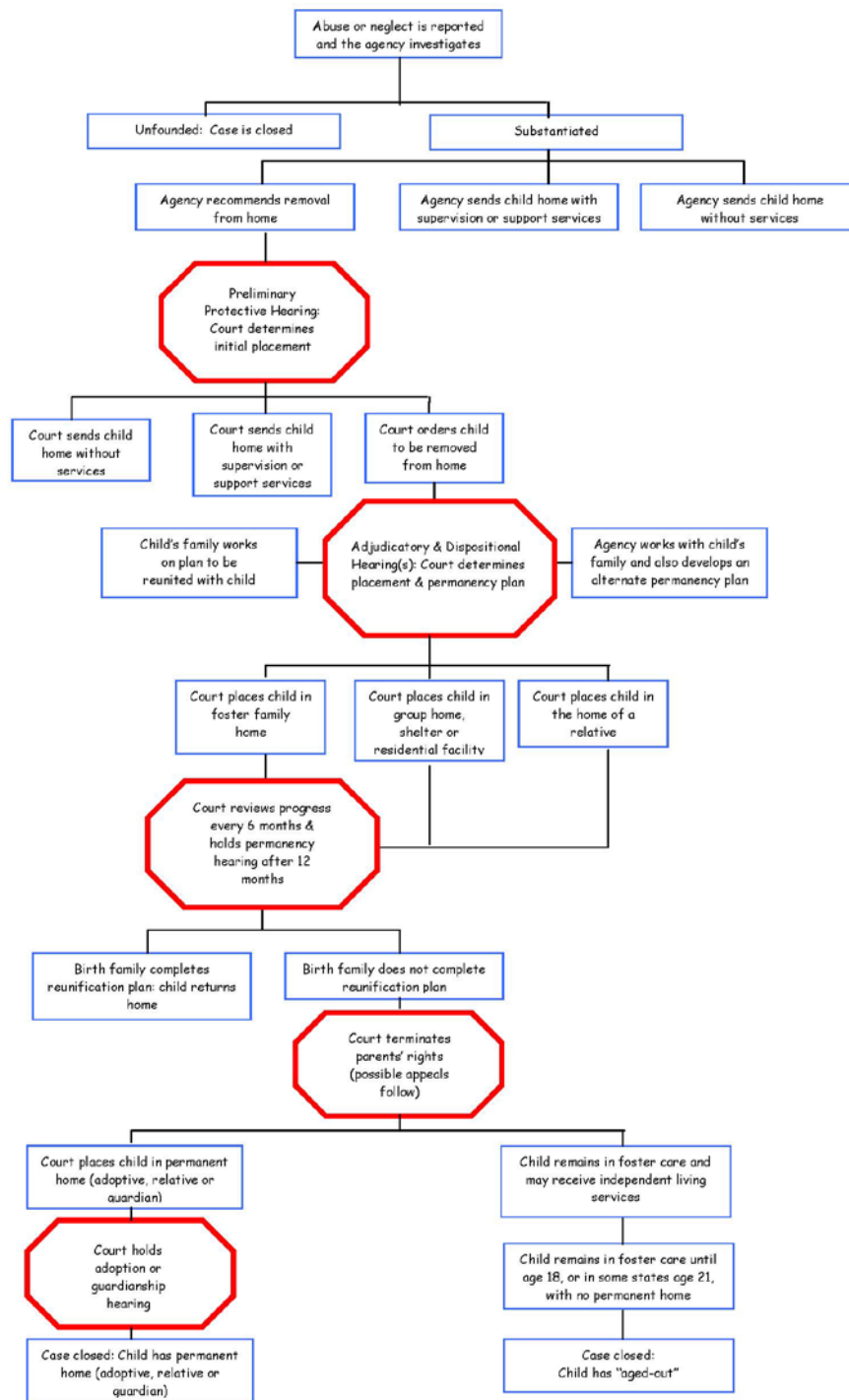


Figure 1-1: A Child's Journey Through the Child Welfare System

Source: Sue Badeau and Sarah Gesiriech, *A Child's Journey through the Child Welfare System*, July 1, 2003. Diagram. The Pew Charitable Trusts. "A Child's Journey Through the Child Welfare System." By Sue Badeau and Sarah Gesiriech. *The Pew Charitable Trusts*. <http://www.pewtrusts.org/our_work_report_detail.aspx?id=48990>.

The Child Welfare process in Hawai'i is different from the general process described above. This will be looked at in more detail in the next chapter.

Programs to Prevent Child Maltreatment:

According to Crosson-Tower there are three types of prevention: primary prevention, secondary prevention, and tertiary prevention. Primary prevention involves educating the general public about child maltreatment, secondary prevention involves focusing efforts on high-risk populations, and tertiary prevention focuses on preventing further abuse from occurring⁷³. Four areas where prevention has been successful are in schools, with families, with professionals, and within the community⁷⁴.

While Crosson-Tower focuses on more general ways of preventing child abuse, the nation's annual report on child maltreatment focuses on state and federal funded programs for prevention. These include the Child Abuse and Neglect State Grant that focuses on awarding states funds to improve the CPS system; the Community-Based Family Research and Support Program which gives funding for community-based prevention programs that strengthen and support families; and the Social Services Block Grant that allows states to use funds for child daycare, child protective services, information, counseling, and foster care⁷⁵.

There are state and community specific programs in Hawai'i that look at both the prevention and support of children and family that are at risk of child maltreatment. These programs will be discussed in chapter six.

⁷³ Crosson-Tower, *Understanding Child Abuse and Neglect*, 401.

⁷⁴ Ibid.

⁷⁵ Children's Bureau, *Child Maltreatment 2011*.

CHAPTER 2. CHILD MALTREATMENT IN HAWAII‘I

Child Abuse in Traditional Hawaiian Culture

Nānā I Ke Kumu (Look to the Source) contains descriptions on how physical violence and child maltreatment were seen and handled in traditional Hawaiian culture. According to the authors, the only time it was socially acceptable for a person to strike their significant other was in the case of infidelity⁷⁶. In general there were limits on physical assault, and it was *kapu*, or forbidden to hit the head, tear clothing, or break the skin.

These rules also applied when it came to the physical punishment of children. It was *kapu* to hit a child in the head and shoulders or box the ears as that is where the *‘aumākua* visited. It was also not allowed to hit a child on the back, to protect the liver; the stomach to protect the guts, which were believed to house a person’s character and intelligence; nor the arms or hands to prevent breaking them⁷⁷. These *kapu* provided essential physical protection to children as in most child abuse cases the greatest injuries come from blows to the head⁷⁸.

Some types of physical punishment were allowed. For example, it was acceptable for an adult to tug on the ear of an inattentive child. Spanking was also allowed, but the most common form of physical discipline was to use a *nī‘au* broom, a broom made of the midribs of coconut palm leaves⁷⁹. There were also rules concerning how this could be handled in that children could only be whacked below the knees on the legs and ankles⁸⁰.

According to Pukui, one of the authors, if parents did not observe the *kapu* and beat their child then there were consequences. After the abuse occurred, members of the *‘ohana* would take the child away and raise him or her. In some cases, after the

⁷⁶ Mary Kawena Pukui, E.W. Haertig, and Catherine A. Lee, *Nānā i ke kumu = Look to the Source Volume II* (Honolulu: Hui Hanai, 1972), 221.

⁷⁷ Pukui, Haertig, and Lee, *Nānā i ke kumu Volume II*, 222.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Ibid.

mistreatment of a child, the *‘ohana* would pass supreme punishment, *mō ka piko*, and sever all ties with the perpetrator.

One does have to wonder if this description of how child maltreatment was handled in traditional Hawaiian culture is idealized. As McGlone recognized in interviews with formerly Hanai’d individuals, the idealized description of traditional practices were not always entirely accurate for all cases⁸¹.

***Hānai* System**

Before Western influence, the Native Hawaiians dealt with child maltreatment through the *Hānai* system. The *Hānai* system was their traditional system for the fostering and adoption of children. According to Pukui, Haertig, and Lee *hānai* means, “to foster, a foster child; to adopt, and adopted child⁸².” It was most often used to mean a child who was raised, educated, and loved by someone other than their birth parents; traditionally their grandparent or other relative⁸³. *Hānai* was traditionally practiced within the *‘ohana*, or family, in which blood relationship was recognized along with the expectations of family loyalties and responsibilities⁸⁴. *‘Ohana* did not just encompass the immediate or nuclear family, but could extend to even 13th or 14th cousins⁸⁵.

Like legal adoptions, *hānai* was a permanent arrangement, The birth parents renounced all claims to the child in a binding agreement witnessed by others when they said, “*Nāu ke keiki kūkae a na’au*,” which translates to, “I give this child, intestines, contents and all.⁸⁶” Parents could not reclaim custody of their children unless their *hānai* parents died or were seriously incapacitated⁸⁷. This permanence was a way to

⁸¹ Katalina L. McGlone, “Raised Hānai: Recollections of Hawaiian Adults.” (PhD diss., University of Hawai’i, 2009) 161.

⁸² Pukui, Haertig, and Lee, *Nānā i ke kumu Volume I*.

⁸³ Ibid.

⁸⁴ Ibid, 49.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Ibid, 50.

protect the child from becoming part of an adult power struggle later, *hukihuki*, which was believed to possibly cause a child to fall sick, or even die⁸⁸.

Unlike legal adoptions, there was no feeling of losing one's child to strangers. Traditionally, the first grandchild belonged to their grandparents⁸⁹. After they were weaned the first born child would be *hānai'd* to their grandparents⁹⁰. The first-born son went to their paternal grandparents, and the first-born daughter went to their maternal grandparents⁹¹. Occasionally, the first born was given to another senior member of the 'ohana but the first-born was almost never kept and raised by their birth parents. Also unlike in present day legal adoptions, children were not cut off from their birth parents. They knew, and were usually visited by their birth parents, and grew up knowing their genealogy⁹². Both the *Hānai* parents, and birth parents, often discussed the child's welfare, speaking together about important decisions to be made in relation to the child⁹³.

According to McGlone, Pukui's description of *hānai* was rather idealized and that this connection between children and their birth parents was not always true. In some cases *hānai* children might not know or have contact with their birth fathers, or feel a connection with their birth family⁹⁴. McGlone posits that this lack of knowledge could have been affected by Westernization, though she admits that there are a lot of factors that could have been important, and she implies there was a lack of data to make a sound conclusion on that point⁹⁵.

McGlone explains that Westernization impacted the practice of *hānai* in five ways: 1) there was a need for legal documentation, 2) the suppression of Hawaiian language, 3) a decreased interest in Hawaiian culture as Western culture became more dominant, 4) changes in the family as a result of interracial relationships,

⁸⁸ Pukui, Haertig, and Lee, *Nānā i ke kumu Volume I*, 50.

⁸⁹ Ibid, 49.

⁹⁰ Pukui, Haertig, and Lee, *Nānā i ke kumu Volume II*, 36.

⁹¹ Pukui, Haertig, and Lee, *Nānā i ke kumu Volume I*, 52.

⁹² Ibid, 49

⁹³ Ibid, 50

⁹⁴ McGlone, "Raised Hānai," 161.

⁹⁵ Ibid, 160.

5) judgments by Western values⁹⁶. The need for legal documentation for schools and medical facilities led to traditional Hawaiians feeling as though they had to go through legal adoption⁹⁷.

At the time *Nānā I Ke Kumu* was written, Pukui stated that Hawaiian families objected to legal adoption because it, “[blotted] out the past.”⁹⁸ Pukui continued that Hawaiian couples looking to adopt children felt the same, that they were concerned about taking a child whose parentage was hidden, and that children had a right to know their genealogy⁹⁹.

Hānai still plays a role in Hawai‘i culture in contemporary times. In 2002 the Hawaii State Legislature created a *Hānai* Task Force to explore how the law could better support the practices of *hānai*¹⁰⁰. This was as a result of concerns that relative caregivers had problems supporting their *hānai* children because schools and health care providers did not consider them as having legal parental authority¹⁰¹. The Task Force led to the passing of two laws, the first of which allows a caregiver to give consent to enroll a minor into school, and give consent for a minor to have full participation in curricular and extra-curricular activities. The second law allows a caregiver to give consent for a minor’s health care including primary and preventative medical and dental care, diagnostic testing, and other necessary health care treatment¹⁰².

History of Child Welfare in Hawaii

There is little literature on the history of Child Welfare in Hawai‘i, so what is included in this section has been pieced together from an article about one of Hawai‘i’s pioneers in social work, an article about the history of child protection in the United States as a whole, and David Malo’s classic article on population in Hawai‘i from 1839.

⁹⁶ McGlone, “Raised Hānai,” 79.

⁹⁷ Ibid.

⁹⁸ Pukui, Haertig, and Lee, *Nānā i ke kumu Volume I*, 50.

⁹⁹ Ibid, 50-51.

¹⁰⁰ McGlone, “Raised Hānai,” 22.

¹⁰¹ Ibid.

¹⁰² Ibid.

In Malo's account, he states that in the past mothers would sometimes use abortion or infanticide over concerns about a lack of support for the child, or fears that the father would leave her¹⁰³. Security concerning adequate support for the family was therefore apparently considered a necessity to allow having children¹⁰⁴.

According to Myers, in the nineteenth and early twentieth centuries, child protection agencies were nongovernmental organizations¹⁰⁵. In Hawai'i, one of these private nongovernmental agencies was the Hawaiian Humane Society, which at that time served abused children and animals¹⁰⁶. According to Carlton-LaNey and Main the Humane Society investigated reports of child abuse, and the staff had the authority to "use aggressive tactics to protect children."¹⁰⁷ The staff was sworn in by the chief of police, wore law enforcement badges, and had the authority to remove children from their homes and initiate arrests of family members if it was necessary to protect the children¹⁰⁸.

All three authors agree that it was the economic downturn of the Great Depression that changed the role of the federal government in social welfare^{109,110}. Hawaiian children were not spared from the Great Depression, and like children on the mainland, their problems were made worse by the economic crisis¹¹¹. In 1935 Congress passed the Social Security Act as part of President Roosevelt's New Deal¹¹². One of the provisions of the act authorized the Children's Bureau, founded in 1912, to cooperate

¹⁰³ David Malo, "On the Decrease in Population on the Hawaiian Islands," trans. L. Andrews, *Hawaiian Spectator* 2, no.2 (1939): 123-124.

¹⁰⁴ Sally Engle Merry, *Colonizing Hawaii: The Cultural Power of Law* (Princeton, NJ: Princeton University Press, 2000), 245.

¹⁰⁵ John E.B. Myers, "A Short History of Child Protection in America," *Family Law Quarterly* 42, no. 3 (Fall 2008): 449-463, http://www.americanbar.org/content/dam/aba/publishing/insights_law_society/ChildProtectionHistory.authcheckdam.pdf (accessed April 29, 2014).

¹⁰⁶ Iris B. Carlton-LaNey and Christine S. Main, "Clorinda Low Lucas: Hawaii's Social Work Pioneer," *Social Service Review* 84, no. 2 (June 2010), <http://www.jstor.org/stable/10.1086/653811> (accessed February, 27, 2014), 288.

¹⁰⁷ Carlton-LaNey and Main, "Clorinda Low Lucas," 288.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid, 289.

¹¹⁰ Myers, "A Short History of Child Protection," 453.

¹¹¹ Carlton-LaNey and Main, "Clorinda Low Lucas," 289.

¹¹² Myers, "A Short History of Child Protection," 453.

with state public-welfare agencies to establish and extend the protection of homeless, dependent, and neglected children that “were in danger of becoming delinquent¹¹³.”

That same year, the Child Welfare League of America recommended that the Hawaiian Humane Society transfer its child maltreatment cases to the newly created Children’s Service Association, in the hopes of improving child welfare standards¹¹⁴. The Children’s Service Association, which was funded by the United Way, ended up combining the work of three child welfare services in order to reduce costs, thus eliminating the overlapping of services¹¹⁵.

Six years later, in 1941, the Children’s Service Association was eliminated when federal funding became available to support separate agencies¹¹⁶. It was during this pre-war period that problems with poverty and child neglect intensified as a result of the economic downturn experienced by the sugar and pineapple industries¹¹⁷. In 1939 a quarter of Hawaii’s population lived on sugar plantations, which prohibited workers from growing their own food, compounding the high cost of food¹¹⁸.

After the attack on Pearl Harbor, martial law was declared in Hawaii, taking a toll on the social structure of the territory¹¹⁹. The effects of the war impacted the school system with the government commandeering school facilities for other purposes, a decrease in time for academic instruction, and the loss of experienced personnel¹²⁰. The rate of student dropout increased, and juvenile delinquency skyrocketed in the then territory¹²¹.

By 1953 there were three voluntary casework agencies in Hawaii, all three of which focused their attention on Oahu. These three agencies were the Lili’uokalani Trust, Children and Family Services, and Catholic Social Services¹²². This is where

¹¹³ Myers, “A Short History of Child Protection,” 453.

¹¹⁴ Carlton-LaNey and Main, “Clorinda Low Lucas,” 289.

¹¹⁵ Ibid, 290.

¹¹⁶ Ibid.

¹¹⁷ Ibid, 295.

¹¹⁸ Ibid, 294-295.

¹¹⁹ Ibid, 301.

¹²⁰ Ibid, 299.

¹²¹ Ibid, 301.

¹²² Ibid, 305.

Carlton-LaNey and Main stop in their descriptions of child welfare services. However, Myers states that by 1967 all states had reporting laws, and with the passage of the Child Abuse Prevention and Treatment Act of 1974, the federal government took a leadership role in the Child Welfare System¹²³. The National Center on Child Abuse and Neglect has responsibility for administering CAPTA, and has funded important research on maltreatment, while shaping the national system of governmental child protective services that are in place to this day¹²⁴.

Child Welfare System in Hawai'i

This project is being conducted during an interesting time for the Child Welfare System in Hawai'i. The Department of Health and Human Services, of which Child Welfare Services is a part, has received permission to implement a demonstration project in the Counties of Hawaii and Honolulu, with the goal of better assisting children that are entering the system and those that have been in foster care for over two months¹²⁵.

Currently, the response of Child Welfare Services to intake referrals is to send a social service worker to provide out-of-home placement to the child involved. An assessment worker then determines whether the case is a substantiated case based on the current Hawai'i Child Safety and Comprehensive Risk Model. The case worker then determines whether the child needs to remain in out-of-home placement¹²⁶.

As stated in chapter one, when a reported case of child abuse is investigated the CPS worker needs to decide whether the case is substantiated as defined by the state law¹²⁷. The full legal definition of child abuse and neglect as stated in Hawai'i law can be found in the Hawai'i Revised Statutes (HRS) Chapters 350 and 587A. Figure 2.1 shows

¹²³ Myers, "A Short History of Child Protection," 457.

¹²⁴ Ibid.

¹²⁵ State of Hawai'i Department of Human Services, Division of Social Services, Child Welfare Services Branch, *Child Welfare Title IV-E Waiver Demonstration Project Proposal Fiscal Year 2013*, (Honolulu: Child Welfare Services, January 2013), <http://humanservices.hawaii.gov/ssd/files/2014/01/FINAL-Title-IV-E-Waiver-Demonstration-Project-Proposal-2013.pdf> (accessed April 29, 2014), 6.

¹²⁶ Child Welfare Services, *Child Welfare Title IV-E*, 19.

¹²⁷ Child Welfare Information Gateway, *How the Child Welfare System Works*, 4.

the process of events when Child Welfare Services responds to a report on child maltreatment.

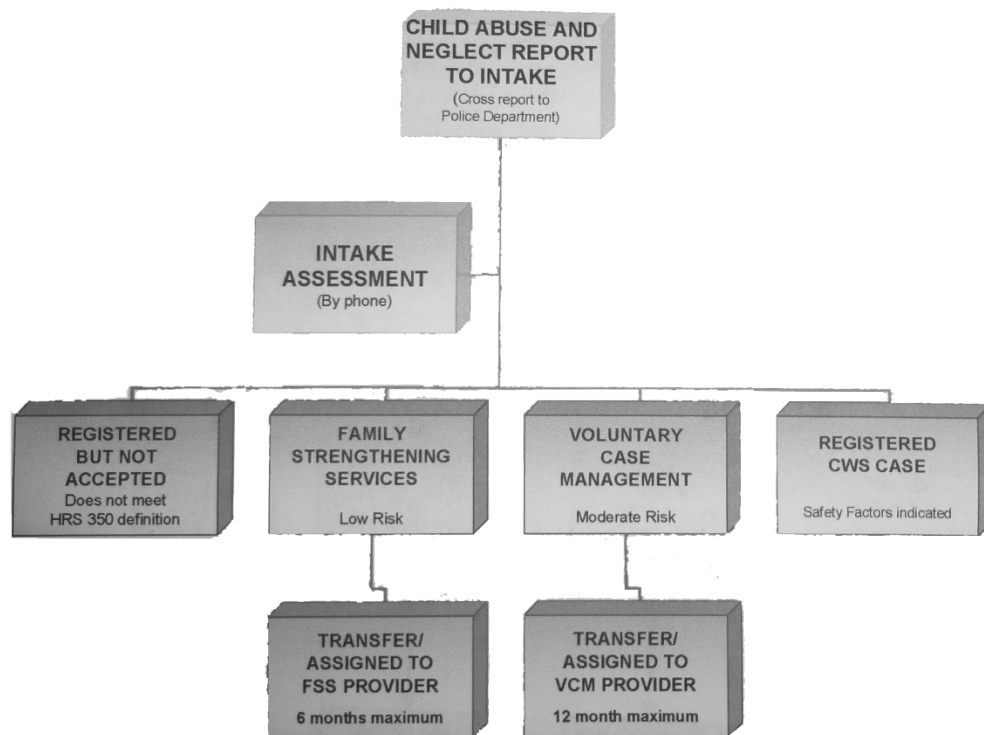


Figure 2.1: CWS response to a report of child maltreatment.

Source: Child Welfare Services, *Intake*, January 14, 2013. Diagram. Child Welfare Services. *Child Welfare Title IV-E Waiver Demonstration Project Proposal Fiscal Year 2013*. Honolulu: Child Welfare Services, 2013: 19.

<http://humanservices.hawaii.gov/ssd/files/2014/01/FINAL-Title-IV-E-Waiver-Demonstration-Project-Proposal-2013.pdf>.

The demonstration project proposes to create a crisis response team (CRT), staffed by trained social workers 24/7, to respond in-person right away to assess the safety/ risk of the child¹²⁸. The CRT will respond to the family home in person within 1-2 hours after receiving a report to assess a family's safety/ risk factors. If the social worker finds that there is a safety risk there are two things that can happen depending on the willingness of the family to do an in-home safety plan.

If the family is willing, the social worker will implement the Comprehensive Strengths and Risks Assessment, which identifies if the family can safely keep the child in their home¹²⁹. If the family is not willing or able to implement an in-home safety plan

¹²⁸ Child Welfare Services, *Child Welfare Title IV-E*, 19.

¹²⁹ Child Welfare Services, *Child Welfare Title IV-E Signed Terms and Conditions*, 5.

than the social worker will remove the child, and assign the case to a traditional child welfare assessment worker¹³⁰.

If the social worker refers the family for intensive home-based services (IHBS), the CRT will respond to the family home within 1-2 hours after an initial report has been given to CWS¹³¹. The social worker will then implement a rapid assessment instrument (RAI) to conduct an initial and ongoing risk assessment and identify the cultural needs of the child and family in order to stabilize the home situation¹³². The results of the RAI will be used to create a service plan for the family¹³³. This is intended to decrease the number of children who are forced into short stays in foster care when it is deemed that they can safely remain in their home, preventing removal-related trauma¹³⁴.

All families will be referred to an Earlier 'Ohana Conferencing Program, where parents and extended family members become partners with the child welfare worker and private partners to make the best decisions for the safety and well-being of a child¹³⁵. Figure 2.2 is a flow chart that shows the proposed process of events when the CRT respond to a report of child maltreatment.

¹³⁰ Child Welfare Services, *Child Welfare Title IV-E Signed Terms and Conditions*, 5.

¹³¹ Ibid.

¹³² Child Welfare Services, 21

¹³³ Ibid.

¹³⁴ Ibid.

¹³⁵ Child Welfare Services, *Child Welfare Title IV-E*, 22.

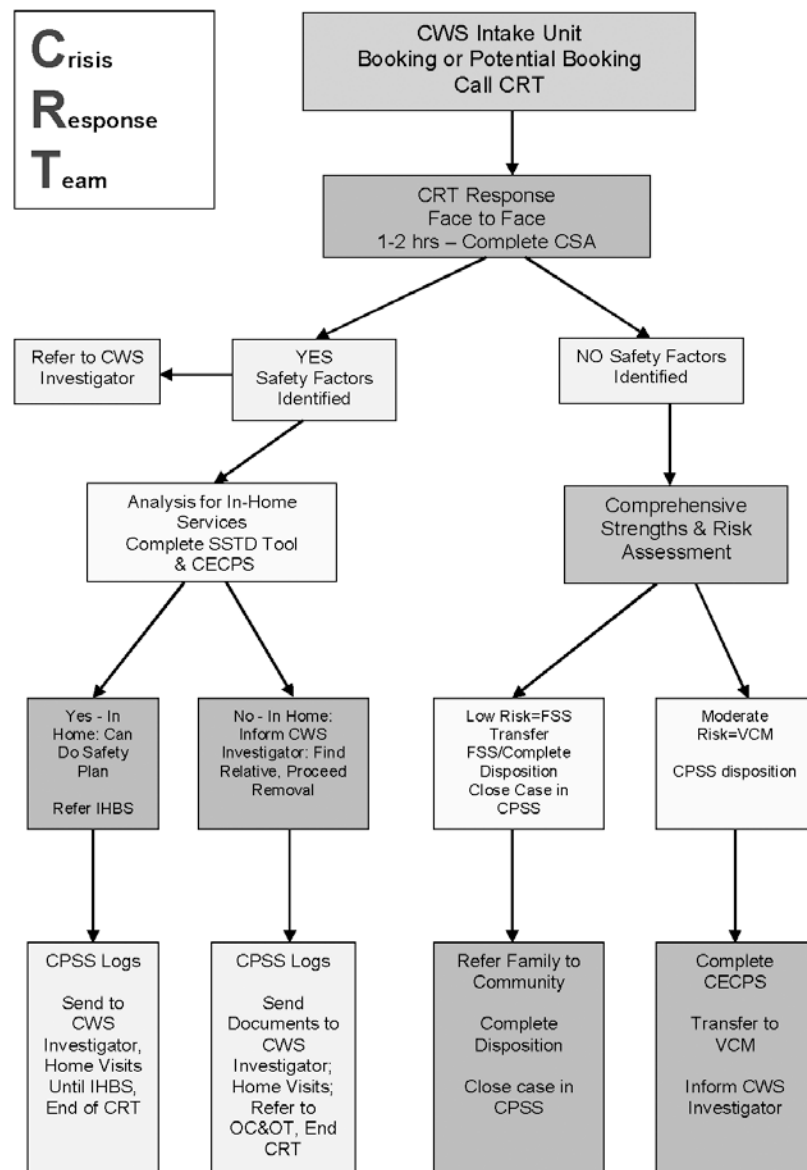


Figure 2.2: Chart of CWS response under new waiver proposal after a case of child maltreatment has been reported.

Source: Child Welfare Services, *Critical Response Team*, January 14, 2013. Diagram. Child Welfare Services. *Child Welfare Title IV-E Waiver Demonstration Project Proposal Fiscal Year 2013*. Honolulu: Child Welfare Services, 2013: 19. <http://humanservices.hawaii.gov/ssd/files/2014/01/FINAL-Title-IV-E-Waiver-Demonstration-Project-Proposal-2013.pdf>.

After the child has been in foster care for over 9 months, they will receive Safety, Permanency, and Well-being Roundtables (SPAW). SPAW brings together the professionals and consultants needed to develop action plans tailored for individual children¹³⁶. Additionally, children who have been in foster care for over 9 months who

¹³⁶ Child Welfare Services, *Child Welfare Title IV-E Signed Terms and Conditions*, 5.

have additional needs, such as academic or development delays, or who are at risk for running away will receive Wrap services¹³⁷.

Wrap services bring together professionals from various agencies to find solutions that allow a child to be safely kept with their families or communities¹³⁸. Wrap services are also intended to lower family's frustration with the Child Welfare System by coordinating the services provided, and getting rid of duplicated services¹³⁹.

The demonstration project was given the go ahead and was implemented on Oahu and the Island of Hawai'i in 2014¹⁴⁰. The demonstration project will be implemented in Hilo, the focus area of this thesis. A description of other state and community programs that are active in Hilo can be found in chapter six.

Perceptions of Child Maltreatment in Hawai'i

The Hawaii Children's Trust Fund and the Joyful Heart Foundation got Ward Research Incorporated to conduct a telephone survey of Hawai'i residents in order to, "measure the perceptions and understanding of child abuse and neglect in Hawai'i and any influencing factors in helping victims."¹⁴¹ This survey was conducted amongst 702 Hawai'i residents over the age of eighteen, with a sample size of around one hundred in the County of Hawai'i specifically¹⁴². The published summary and analysis of the survey was organized by first giving the statistics of the state as a whole, before moving on to the statistics of the four counties.

This survey serves as an important indicator of both the perceived and actual cases of child abuse in the state and county, as opposed to just the reported cases as the annual reports show. It also indicates the willingness of residents to report abuse, as well as the community's level of knowledge that the community holds on what defines child abuse and what the warning signs of abuse are. The survey warns that Hawai'i

¹³⁷ Child Welfare Services, *Child Welfare Title IV-E Signed Terms and Conditions*, 6.

¹³⁸ Ibid.

¹³⁹ Child Welfare Services, *Child Welfare Title IV-E*, 22.

¹⁴⁰ Ibid.

¹⁴¹ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*.

¹⁴² Ibid.

residents as a whole are lacking knowledge about child abuse, and the public needs to be better educated about the issue¹⁴³.

According to the survey, 39% of Hawai'i residents know someone who is a victim of child maltreatment, and 9% of these residents reported that they themselves were victims of child maltreatment (See Figure 2.3)¹⁴⁴. 80% of residents believe that child abuse and neglect is a major problem in society. From these numbers it is clear that child maltreatment is a major problem that the state needs to address as a whole.

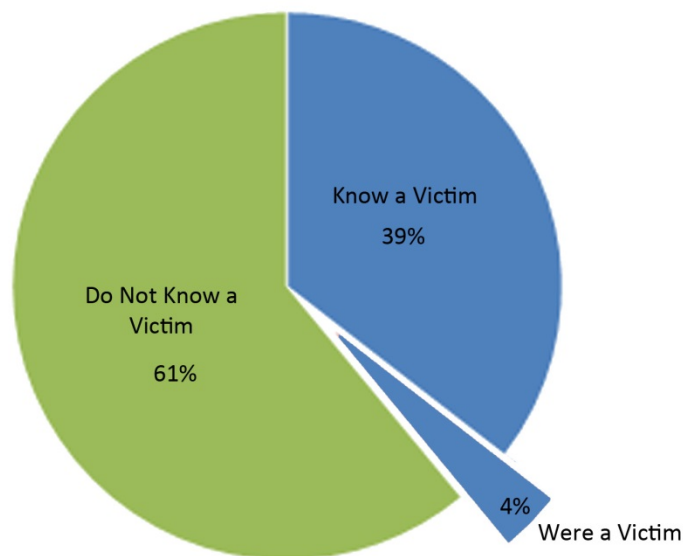


Figure 2.3: Percentage of State Residents that know Child Maltreatment Victims.

Source: Chart created from data in Hawai'i Children's Trust Fund and the Joyful Heart Foundation, *Perceptions of Child Abuse and Neglect in Hawai'i: A Comprehensive Study of Hawai'i residents July 2011*.

The survey goes on to show specific trouble areas that the state needs to work on, specifically community recognition of the warning signs of abuse, as well as the lack of reporting. For instance, 64% of residents have a hard time recognizing the warning signs of child maltreatment¹⁴⁵. 67% of residents would call CWS and 69% of residents would call the police if they believed that a child they did not know well was being

¹⁴³ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*, 33.

¹⁴⁴ Ibid, 18.

¹⁴⁵ Ibid, 19.

abused¹⁴⁶. These percentages grow to 76% and 72% respectively if the resident knows the child very well¹⁴⁷.

These statistics show that a possible factor in the decrease in child abuse reporting in the state as a whole is a result of the residents' lack of recognition of what the signs of child abuse are, rather than a lack of willingness to make a report. Despite this show of willingness, it was found that the knowledge that a resident could make a report anonymously, or report to someone other than CWS might greatly increase the likelihood that a resident would report suspected abuse¹⁴⁸.

This positive outlook on anonymity ties in with the fact that the majority of residents in the state fear that they will be victims of revenge if they report suspected abuse. It is also the case that the majority of residents stated that while they would report abuse to the CWS, they were really much more likely to speak of the abuse to their friends, rather than to the proper authorities¹⁴⁹.

¹⁴⁶ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*, 21.

¹⁴⁷ Ibid.

¹⁴⁸ Ibid, 23.

¹⁴⁹ Ibid, 30.

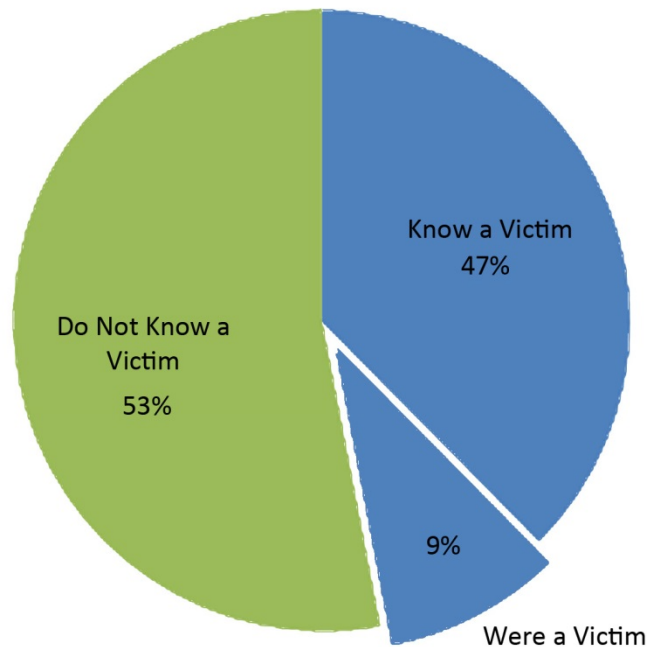


Figure 2.4: Percentage of COH Residents that know Child Maltreatment Victims

Source: Chart created from data in Hawai'i Children's Trust Fund and the Joyful Heart Foundation, *Perceptions of Child Abuse and Neglect in Hawai'i: A Comprehensive Study of Hawai'i residents July 2011*.

The statistics for child maltreatment in the County of Hawai'i are higher than those of the state, with 47% of residents knowing a victim of child maltreatment, 20% of these, or 9% of all residents, having been victims themselves as shown in Figure 2.4¹⁵⁰. This is the highest rate in the state, which makes it no wonder that 89% of residents believe that child abuse is a major problem¹⁵¹. The rest of the statistics show that county residents are similar to residents in the state as a whole in their lack of knowledge about child maltreatment.

The comparison of the statistics of the county versus that of the state show that the County of Hawai'i has the same problems as the state, but need to have this corrected more urgently as it seems to have higher rates of child abuse than other areas of the state.

¹⁵⁰ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*, 32.

¹⁵¹ Ibid, 33.

CHAPTER 3. ENVIRONMENTAL PSYCHOLOGY

What is Environmental Psychology?

The definition of Environmental Psychology that McAndrew prefers in his text is, “the discipline that is concerned with the interactions and relationships between people and their environments.”¹⁵² Environmental psychology looks at the reaction of people to their context: the built, natural, and social environment, though it is sometimes impossible to separate the built and natural environments from the social¹⁵³.

Traditionally environmental psychology emphasizes how human behavior, feelings, and sense of well-being are affected by the physical environment¹⁵⁴.

Ambient Environment

The ambient environment is the nonvisual aspects of the physical environment: the sound, temperature, odor, and illumination in a person’s surroundings. It has an impact on everything that a person does: their work performance, moods, and physical well-being¹⁵⁵. It is vital to understand how the ambient environment affects people in order to design spaces that support rather than hinder a person’s well-being.

One aspect of the ambient environment is temperature. Extreme changes in temperature, both cold and heat, produce discomfort and can disrupt performance on a variety of tasks¹⁵⁶. Temperature can affect a person’s health and social behaviors. For instance, extreme heat increases aggression and decreases a person’s attraction to other people. When the temperature is high: rates of violent crime increase while rates

¹⁵² Francis T. McAndrew, *Environmental Psychology* (Pacific Grove, CA: Brooks/Cole Publishing Company, 1993), 2.

¹⁵³ McAndrew, *Environmental Psychology*, 2.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid, 51.

¹⁵⁶ Ibid, 59.

of non-violent crime do not¹⁵⁷. In comparison, when in laboratory settings, people who are exposed to extremes of both hot and cold are less likely to help others¹⁵⁸.

This increase in aggression and greater reluctance to help others when exposed to heat has great connotations for this project. The project is sited in Hawai'i, specifically in Hilo, where the climate is both hot and humid. If both the client and the social worker or child welfare professional are feeling uncooperative as a result of the temperature, then their likelihood of coming to a positive outcome for all involved has been negatively impacted.

Likewise, light also has a profound effect on people. Research confirms that bright light, particularly daylight, which people generally prefer, has antidepressant effects on people who suffer from depressive disorders¹⁵⁹. Bright light increases activity levels in humans, while darkness releases social inhibition¹⁶⁰. People exposed to darkness are more likely to engage in intimate, aggressive, or impulsive behavior.

The amount of illumination that people need depends on the situation. In a work environment the level of illumination can affect task performance. Bright light aids visual activity, and increases comfort to make tasks easier. However, too much light and glare hinders tasks. Another point to take into account is the relative age of the person using a space, because as a person ages the flexibility of the lens in their eye decreases, and they need a brighter work environment¹⁶¹.

Noise, by its definition, has a negative impact on a person's well-being. While one can physically experience sound, noise is the psychological concept of unwanted sound. Prolonged exposure to noise at home or work can have long-term negative consequences for people including hearing loss and other health problems like high blood pressure¹⁶². Noise does not just affect a person physically, but also psychologically. There is a negative relationship between noise and academic

¹⁵⁷ McAndrew, *Environmental Psychology*, 60.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid, 62.

¹⁶⁰ Ibid, 63.

¹⁶¹ Ibid.

¹⁶² Ibid, 65.

achievement. Children who are in a classroom on the noisy side of a building tend to do worse academically than when they are on the quiet side¹⁶³.

Noise also affects social behavior in similar ways to high temperatures. In laboratory settings experiments have linked an increase in noise to an increase in aggression. Out in the world neighbors in a noisy environment are less likely to have social interactions than in quiet neighborhoods¹⁶⁴. This can have a direct impact on families who are already at risk of child maltreatment, as a lack of interaction with neighbors and lack of support greatly increases the risk that child maltreatment will occur¹⁶⁵.

While color is technically a visual part of the physical environment, it has a great effect on a person both physically and psychologically. Variation in room color affects a person's physiological reactions, such as their blood pressure and respiratory rate¹⁶⁶. Color also affects how people perceive space. Light colored rooms seem bigger and more spacious, while dark rooms seem smaller, richer, and more expensive. Warm colors increase activity, while cool colors are passive. People tend to walk faster in hallways that are painted in warm colors versus cool colors¹⁶⁷.

Environmental Stress

Environmental stress occurs where the environmental load is too high or too low for an extended period of time. Two examples of environmental stress include an environment that causes overstimulation from information overload causing mental fatigue; or if the environment is perceived to be unpredictable and uncontrollable leading a person to feel helpless and unable to cope with their situation¹⁶⁸.

¹⁶³ McAndrew, *Environmental Psychology*, 68.

¹⁶⁴ Ibid.

¹⁶⁵ E. Alison Holman and Daniel Stokols, "The Environmental Psychology of Child Sexual Abuse," *Journal of Environmental Psychology* 14, no. 3 (September 1994), doi:[http://dx.doi.org/10.1016/S0272-4944\(94\)80059-6](http://dx.doi.org/10.1016/S0272-4944(94)80059-6) (accessed February 12, 2014). 245.

¹⁶⁶ McAndrew, *Environmental Psychology*, 64.

¹⁶⁷ Ibid, 65.

¹⁶⁸ Ibid, 77-78.

There are four categories of environmental stressors. These are: 1) cataclysmic events, or events such as natural disasters or war; 2) stressful life events such as major illnesses or family problems; 3) daily hassles such as crowding or traffic; and 4) overstimulation in the ambient environment¹⁶⁹. These stressors are perceived as being outside of a person's control. They can be tolerated for a short time without obvious harm, but a long term of exposure can interfere with task performance and affect a person's mood and physical well-being¹⁷⁰.

In the short-term if a person feels that they have others available for assistance and comfort they can adapt better to environmental stress. However, in the long-term the effects that environmental stress has on a person could start to erode a person's social support; which lowers the extent of the mitigation from severe psychological distress¹⁷¹.

Stress does not just affect a person psychologically, but also physically. Acute and chronic stress causes negative physical changes in the human body. They can cause a change in sex hormone levels, a loss of lipids from the adrenal cortex, and change the activity of lymphocytes. Stress can also cause an endocrine imbalance which leads to permanent changes in how the brain functions¹⁷². The physical and psychological effects of stress are looked at in more detail later in this chapter.

Effects of the Built Environment on Children

One of the most important things to take into account when designing spaces for children is how they perceive the built environment. Christopher Day points out the differences between how children perceive the built environment, and how the adults who design their environment perceive it. For adults, a space is strictly categorized by what its predefined purpose is¹⁷³. How the space is used and what the space is for. For

¹⁶⁹ McAndrew, *Environmental Psychology*, 79.

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Christopher Day and Anita Midbjer, *Environment and Children: Passive Lessons from the Everyday Environment*, (Amsterdam: Architectural Press, 2007).

example, adults categorize rooms for their single purpose such as a living room, or a bedroom, as shown in Figure 3.1.

Children interface with the built environment in a completely different way. Children perceive the built environment by what they experience when they encounter it¹⁷⁴. To them, a place is about what opportunities there are to do things. Children do not categorize spaces into a single space by their function, but rather each space gets categorized into five distinct places: each of the four corners, and the center of the room¹⁷⁵. This is shown in Figure 3.2.

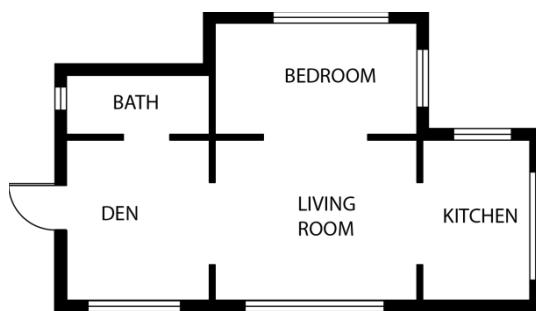


Figure 3.1: Adults perceive space in terms of function.

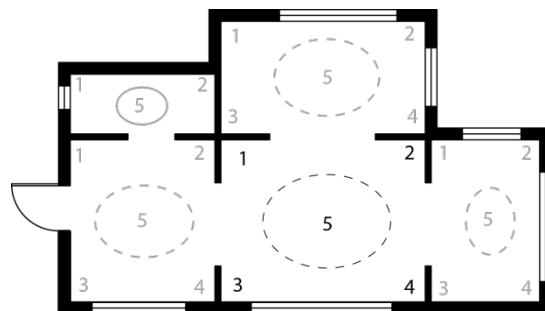


Figure 3.2: Children perceive space in terms of potential uses by separating each room into four corners and a center.

Adapted from: Christopher Day and Anita Midbjer, *Child Spaces in a Room*, 2007. Ink Drawing. Architectural Press. *Environment and Children: Passive Lessons from the Everyday Environment*. By Christopher Day and Anita Medbjer. Amsterdam: Architectural Press, 2007: 233.

The difference in how children and adults use space also affects how the built environment can have a negative physical impact on a person. Children and adults inhabit different microenvironments: such as the different bands of horizontal levels of air in a space¹⁷⁶. Children play on the floor, while adults tend to sit and stand higher up off the floor. In the case of radon contamination, it sits in higher and higher concentrations closer and closer to floor level. To make matters worse, since children

¹⁷⁴ Day and Midbjer, *Environment and Children*.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid, 233.

have smaller bodies they experience higher concentrations of radon contamination for a given amount of radon in the environment¹⁷⁷. This is the case with most volatile organic compounds or VOCs, many of which are emitted by synthetic carpets¹⁷⁸. This shows the importance of choice in flooring materials by designers to cut down on contaminants that children are exposed to.

Harmful chemicals in building materials, pesticides, mold, and metals can negatively impact the development of a child's cells, lungs, and brain¹⁷⁹. Kopec states that clean air is particularly important in multipurpose facilities that cater to children¹⁸⁰. Clean air means minimal levels of VOCs, proper ventilation, and access to fresh outdoor air. Asthma is the most prevalent illness in children in the United States, and is suspected to be caused by second-hand smoke, mold, and chemical irritants such as: formaldehyde found in hundreds of common products, nitrogen dioxide in gas and kerosene appliances, and the outgassing of chemicals in carpets¹⁸¹. Asthma negatively impacts children in the long term by resulting in poor lung function and other respiratory diseases later in life¹⁸².

Kopec states that to prevent the negative impacts of air pollutants; walls and ceilings should be regularly cleaned of mold, and indoor spaces should be regularly vacuumed¹⁸³. The design ramifications of this are that designers should take into consideration alternative flooring besides carpeting, and materials that cut down on the development of mold. Spaces should be designed with adequate ventilation to keep clean air quality, as well as to prohibit the formation of mold and mildew from moisture.

The built environment also plays a part in stimulating brain function in the brain development of young children. The process of dendritic trimming, where the brain removes some synapses so that the remaining synapses can become more specific

¹⁷⁷ Day and Midbjer, *Environment and Children*, 233.

¹⁷⁸ Ibid.

¹⁷⁹ Dak Kopec, *Health, Sustainability, and the Built Environment*, (New York: Fairchild Books, 2009), 226-230.

¹⁸⁰ Day and Midbjer, *Environment and Children*, 227.

¹⁸¹ Ibid, 60-61.

¹⁸² Ibid, 60.

¹⁸³ Ibid.

occurs when children are around two¹⁸⁴. In this case it is a matter of “use it or lose it”. The formation of specific synapses are influenced by stimuli in the environment such as an opportunity to learn and activities that engage the brain in problem solving¹⁸⁵.

Studies have shown that animals that are raised in environments with a variety of sensory stimuli and activities develop bigger brains¹⁸⁶. This means that designers need to incorporate a variety of sights, sounds, smells, shapes, and textures for young children in the design of spaces that cater to children, without providing an overstimulation¹⁸⁷. Designers also need to be aware of what materials they use for children’s spaces; for example lead disrupts brain processes, which can lead to brain impairments¹⁸⁸.

It may not seem like the built environment has as much to do with bone development in children as with other developmental areas, but it still plays a role. The most important factors in forming strong bones are physical exercise and proper nutrition¹⁸⁹. The two most important nutrition elements are calcium and vitamin D, which enables calcium to be available to bones. The skin manufactures vitamin D when exposed to the sun¹⁹⁰. All of these factors do have an environmental component since children need access to both sunshine and movement to build strong bones. Designers need to keep this in mind when designing both indoor and outdoor spaces. If the weather does not permit outdoor activities there still needs to be space for children to move around.

The physical impacts the built environment have on child development give a guide on what children need to thrive. Spaces designed for children need to provide: freedom from contaminants, space to move safely, sensory stimulation, and clear paths

¹⁸⁴ Kopec, *Health, Sustainability, and the Built Environment*, 229.

¹⁸⁵ Ibid.

¹⁸⁶ Ibid.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid, 229-230.

¹⁸⁹ Ibid, 230.

¹⁹⁰ Ibid.

between spaces. Children need to have variety in their spaces, including a variety of textures, to stimulate young children and lead them to explore their environment¹⁹¹.

Beside just the physical, the built environment can also have a negative impact on a child's psychological development. Everyone has experienced the stress of trying to navigate through a confusing building. The frustration caused by walking along long corridors, not knowing where they lead, or if it is even in the right part of the building, creates stress. People feel more confident in buildings that are easy to interpret¹⁹². This is particularly important in children in order for them to feel safe¹⁹³. An environment without obvious pathways from one place to another can make a child confused or frightened. They need to know what is going on in an adjacent room through visual, auditory, or olfactory connections, to keep from feeling cut off¹⁹⁴. On a more practical level, an area will remain unused if there is no clear way to get there.

Confusing buildings teach children that the world is unreliable, that things are not what they appear to be and need to be learned and remembered¹⁹⁵. It makes a child feel like they can never be confident that they are in the right place. Day states that a child needs an environment that allows for mood-individuality, meaningful unity, and navigational clarity; as this helps a child know where they are and gives them the reassurance that they are safe¹⁹⁶.

Light

The design of light, specifically daylight, in the built environment is vital to the healthy development of children. However, children of different ages require different amounts of light for their stage of development. For example older students, such as teenagers need bright, well-daylit classrooms to aid in their mental clarity, as it helps

¹⁹¹ Kopec, *Health, Sustainability, and the Built Environment*, 230-231.

¹⁹² Day and Midbjer, *Environment and Children*, 21.

¹⁹³ Ibid, 22.

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

them keep awake and alert¹⁹⁷. Students in such environments progress 20% faster in math, and 26% faster in reading than their peers¹⁹⁸.

In contrast small children need bright spaces for intellectual work, as well as half-lit spaces or shaded spaces that encourage dreams and fantasy for their healthy development¹⁹⁹. Half-lit spaces are passive spaces, spaces that encourage day-dreams. Shaded spaces make a child feel more secure, makes them less visible and less exposed²⁰⁰. Different activities require different levels of light.

The two most important things to consider when designing daylighting in buildings for children are the ceilings and windows. The color, material, and height of the ceiling play a large part in bringing daylight into a building in a comfortable manner. Dark ceilings tend to drink up daylight, while light colored ceilings brightens up rooms as light reflects off of them²⁰¹. Low ceilings reflect the light at shallow angles which cause beams to cast more shade, and glare on work surfaces. High ceilings need less electrical lighting as they reflect light onto work surfaces²⁰².

According to Day, the placement of windows is not just vital for allowing daylight into a space, but also affect a child's attention and feeling of safety²⁰³. If a room does not have views outside, children can feel trapped. Contrarily, views to action taking place outside are distracting²⁰⁴. For this reason, windows should not be placed directly opposite of other windows or doors as they cause distracting views²⁰⁵. This is illustrated in Figure 3.3.

¹⁹⁷ Day and Midbjer, *Environment and Children*, 101

¹⁹⁸ Ibid.

¹⁹⁹ Ibid.

²⁰⁰ Day and Midbjer, *Environment and Children*, 101.

²⁰¹ Ibid, 105.

²⁰² Ibid.

²⁰³ Ibid.

²⁰⁴ Ibid.

²⁰⁵ Ibid.

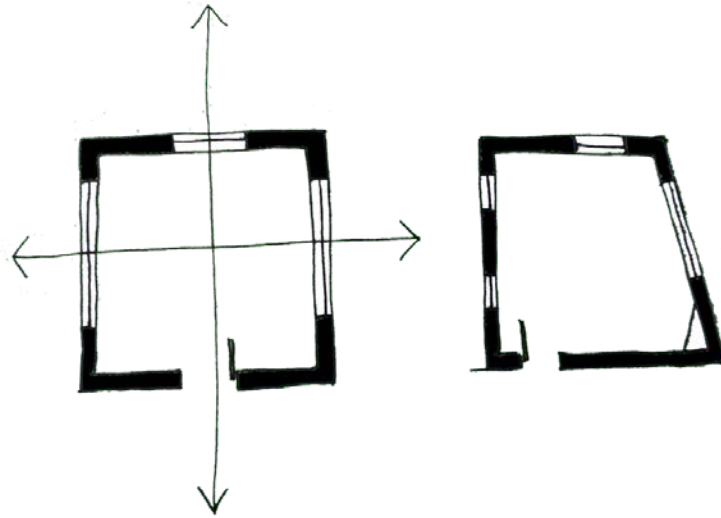


Figure 3.3: Windows or doors opposite each other distract children's attention.

Source: Christopher Day and Anita Midbjer, *Windows Opposite One Another Bleed Children's Attention*, 2007. Ink Drawing. Architectural Press. *Environment and Children: Passive Lessons from the Everyday Environment*. By Christopher Day and Anita Medbjer. Amsterdam: Architectural Press, 2007: 106.

Color

Similarly to light, color affects building occupants both psychologically and physically. The color of the environment affects the autonomic nervous system, muscle tension, cortical activity, and enzymatic hormone secretions²⁰⁶.

Psychologically, color can instantly affect a person's mood. Warm colors like yellow, orange, and red are active: energizing and exciting. Cool colors such as blue or green are passive: calming and quieting²⁰⁷. This can also be seen in natural materials like wood. Light woods are cheerful, joyful, inspiring; while dark woods are cozier but can make a space feel gloomy²⁰⁸.

An example of how color can have an instant effect is in the case of bubble-gum pink, which can supposedly subdue a violent emotion in seconds²⁰⁹. While red is a highly exciting color, pink rooms reduce anxiety and cause relaxation and, supposedly a

²⁰⁶ McAndrew, *Environmental Psychology*.

²⁰⁷ Day and Midbjer, *Environment and Children*, 115.

²⁰⁸ Ibid.

²⁰⁹ Day and Midbjer, *Environment and Children*.

lowering of aggression²¹⁰. The effect pink has to reduce aggression is a highly contested subject.

Similarly to light, children's color-needs change as they age; and as they do different activities throughout the day, their color needs change as well. In general young children prefer warm colors, such as reds yellows and oranges, which encourages activity and play²¹¹. Older children, by comparison need cooler colors like blue to help calm their bodies and help with their concentration²¹². However, children need a different palette for different activities: bright warm colors for activity and play, and darker cooler colors for rest²¹³.

According to Day, as children are still adapting and growing into their physical bodies they need to be drawn down into themselves through rooms with darker colors above, and lighter colors below. In contrast to this, adults who have already grown into themselves physically and instead focus on the psychological, need darker colors below and lighter colors above in their environment²¹⁴.

Buildings and Personal Well-being

Stress

The sympathetic system is one of two systems that are part of the autonomic nervous system, which controls a person's unconscious bodily functions such as their heartbeat, digestion, and breathing²¹⁵. When under stress, the sympathetic system puts the body into a physical state of high alert, as a way to safeguard the person from physical threats²¹⁶. In the contemporary world, stress is not usually of a physical nature, but rather mental.

²¹⁰ McAndrew, *Environmental Psychology*, 65.

²¹¹ Day and Midbjer, *Environment and Children*, 118.

²¹² Ibid.

²¹³ Ibid, 119.

²¹⁴ Day and Midbjer, *Environment and Children*, 118.

²¹⁵ Kopec, *Health, Sustainability, and the Built Environment*, 39.

²¹⁶ Ibid.

Yet despite this, the body's reaction to stress, whether physical or mental, is the same. Over time, those reactions increase heart rate and blood pressure, slow digestion, open respiratory passages, and suppress the immune system; eventually causing the body to wear out²¹⁷.

Some design suggestions that Kopec makes to prevent stress is to design interiors with efficient work areas, quiet areas away from main traffic flow and activity areas for relaxation. Designs should also include: outdoor spaces, and allow for smooth-flowing movement²¹⁸.

Kopec states that workplace stress can cause headaches, sleep disturbances, difficulty concentrating, short temper, upset stomach, job dissatisfaction, and low morale²¹⁹. These are all things which interfere with employee performance and productivity in the standard workplace, but in the case of a child protection service worker, a drop in employee performance could have disastrous consequences for both their clients, and their own personal lives²²⁰. Kopec suggests that the most important environmental factors that cause job stress in employees are the factors that they cannot control such as: uncomfortable temperatures, inappropriate workstations, noise, and lack of communication among employees²²¹.

These can be mitigated by planning areas where employees can meet and share ideas, or escape from their duties and engage in stress-reducing activities²²². These stress-reduction areas should include comfortable quiet areas for reflection, an escape from the noise and activity of the workplace. The workplace should be designed with convenience and home-like qualities to help employees lower stress and become more productive²²³.

²¹⁷ Kopec, *Health, Sustainability, and the Built Environment*, 39.

²¹⁸ Ibid, 40.

²¹⁹ Ibid, 314.

²²⁰ Ibid, 314.

²²¹ Kopec, *Health, Sustainability, and the Built Environment*, 314.

²²² Ibid.

²²³ Ibid, 315.

Halpern agrees with Kopec that studies show that looking out at greenery can improve a person's mood²²⁴. He gives the example that patients that can see trees from their hospital windows are reported to make faster recoveries²²⁵.

While Halpern agrees with Kopec on what elements of the environment contribute to a person's stress, he puts a deeper focus on how the built environment should facilitate social interaction, and enhance a person's perceived control over their environment.

Stress in Child Welfare Workers

It is not only the stress of children and their families that play a role in the positive or negative outcome of rehabilitation or prevention child maltreatment programs. The stress experienced by child welfare workers is also vital in influencing the effectiveness of programs. According to Kim, it is essential to sustain a high level of commitment and morale among service providers in order to maintain the capability of social service agencies to provide their services²²⁶. Child welfare workers are at a high risk of burnout, which is a combination of emotional exhaustion, depersonalization and reduced personal accomplishment²²⁷. The service workers feels overextended, and depleted of emotional and physical resources, leading them to no longer have sympathy or positive feelings for clients and coworkers²²⁸. Burnout can lead to faulty judgments which compromise client services²²⁹.

The loss of empathy from burnout in child welfare workers not only causes a loss of productivity in their work, but also a lack of quality. This is a serious problem when the decisions they make in their work impact the fates of children and families. The

²²⁴ David Halpern, "An Evidence-Based Approach to Building Happiness," in *Building Happiness: Architecture to Make you Smile*, ed. Jane Wernick (London: Black Dog Publishing, 2008), 72.

²²⁵ Halpern, "Evidence-Based Approach to Building Happiness," 72.

²²⁶ Hansung Kim, "Job Conditions, Unmet Expectations, and Burnout in Public Child Welfare Workers: How Different from Other Social Workers?," *Children and Youth Services Review* 33 (October 2011), Doi: 10.1016/j.chilyouth.2010.10.001 (accessed February 19, 2014), 358.

²²⁷ Kim, "Job Conditions, Unmet Expectations, and Burnout," 359-360.

²²⁸ Ibid, 360.

²²⁹ Ibid.

social workers' view of a family impacts the participation of the family²³⁰. A therapist's warmth, respect, empathy, and acceptance increases a client's sense of trust in the therapist, and significantly influences the process of psychotherapy²³¹. In the case of child welfare workers, job stress can lead to burnout, which leads to a negative impact on the children and families with whom they work.

Stressors in the Home

Holman and Stokols stated that physical stressors in the home could make potential offenders more likely to engage in abusive behavior²³². These stressors could include high noise and density levels and financial strain that cause stress and negatively affect family members.

Happiness

According to Halpern, one of the key elements in the built environment that promotes happiness is the facilitation of social interaction, while allowing the individual to control when, where, and with whom that social interaction will occur²³³.

The main question that arises when looking at how buildings affect a person's well-being is: how can a person's well-being be measured? Halpern explains different ways this can be done. One way is to simply ask a person general questions like, "generally how happy are you?" or "taking all things into account how satisfied are you with life?" A person could also be asked how happy they are based on a scale such as "not at all happy" to "very happy", or a numeric scale based on one to ten²³⁴. The alternative to these questions would be to do the opposite, and instead look at a

²³⁰ Kim, "Job Conditions, Unmet Expectations, and Burnout," 365.

²³¹ Ibid.

²³² Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 245.

²³³ Halpern, "Evidence-Based Approach to Building Happiness," 70.

²³⁴ Ibid, 70-71.

person's level of unhappiness by asking questions about feelings of anxiety and depression, or symptoms of disrupted sleep, headaches, and lack of energy²³⁵.

While these are all indicators of how happy or unhappy a person is, there are problems with then correlating these answers to the built environment. For instance, when looking at populations, there are other factors that effect if they are happy in a particular location such as socio-economic status²³⁶. There is also the problem of response bias. People who are happy are more likely to be more positive about everything, which effects their perception of the built environment²³⁷. Likewise, people who are unhappy are more likely to be negative about everything, coloring their perception of the built environment negatively.

Environmental Psychology and Child Maltreatment

Environmental psychology plays a part in the entire process of child abuse from before the abuse starts, to during the abuse, to after the abuse ends. According to Holman and Stokols, some physical environments may increase the risk of sexually abusive behavior as a result of spatial layouts and design features that cause the physical isolation of a child within their home²³⁸. In comparison, a spatial layout and design features that allows for an individual to control their environment, while discouraging extreme physical, visual, or auditory isolation can reduce opportunities for a perpetrator to commit child sexual abuse²³⁹. While Holman and Stokols are primarily speaking about child sexual abuse in particular, they do state that these conditions are applicable for child abuse in general.

The authors continue by categorizing the environmental factors that facilitate child sexual abuse from the residential level, to the neighborhood level, to the larger community level. At the residential level the environmental factors that most impact child abuse are the spatial layout and design of the home, the pattern of the

²³⁵ Halpern, "Evidence-Based Approach to Building Happiness," 71.

²³⁶ Ibid, 71-72.

²³⁷ Ibid, 72.

²³⁸ Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 242.

²³⁹ Ibid.

household's activities, family size and residential density of the area, and the geographic isolation of the home in comparison to other homes²⁴⁰.

The spatial layout of a home affects a child's privacy and defensible space. Specifically, the physical, visual, and auditory isolation of a child's bedroom from the public areas of the home cut off the surveillance of other family members, and leave the child more vulnerable to victimization²⁴¹. The family's pattern of household activities influences the surveillance process, while the size of the family and residential density may negatively impact the family by increasing stress²⁴². Just as the increase in isolation of a child's bedroom increases a child's vulnerability from the lack of surveillance, the geographic isolation of the home from other homes does the same by reducing the informal social controls of the community²⁴³.

At the neighborhood level the environmental factors that most impact child abuse are: the transience or the average length of time residents live in the neighborhood; social and physical delinquency such as public drunkenness, gangs, prostitution, vandalism, and dilapidated buildings; and a high volume of vehicular traffic²⁴⁴. High levels of transience of the residents in a neighborhood, as well as physical and social delinquency undermine supportive social connections between neighbors, while high volumes of vehicular traffic break up neighborhood cohesion²⁴⁵.

At the larger community level the environmental factors that most impact child abuse are: society's tolerance of violence and aggressive sexual behavior; the societal norms on corporal punishment, authoritarianism, and family privacy; and high rates of economic and social change in the community²⁴⁶. The societal views and norms on violence, aggressive sexuality, and corporal punishment of children could weaken societal constraints against child sexual abuse, while privacy norms limit the

²⁴⁰ Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 246.

²⁴¹ Ibid, 245.

²⁴² Ibid.

²⁴³ Ibid, 246.

²⁴⁴ Ibid.

²⁴⁵ Ibid.

²⁴⁶ Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 246.

interventions of the community on families that are at risk for abusive behavior²⁴⁷. On a wider scale, the psychological distress and social strains on the family and community caused by high rates of economic and social change further increase the risk of child abuse in families that are already at risk for this behavior²⁴⁸.

While Holman and Stokols suggest environmental design strategies to counteract the long-term negative consequences of child sexual abuse, at the time they wrote the article, those strategies were untested. The most important suggestions that Holman and Stokols put forward are the four strategies that can be used to enhance the feelings of perceived safety and comfort of the spaces in shelters, clinical settings, and homes. These strategies are: 1) allow individuals to have visual access, yet not over-exposure to others; 2) allow for flexibility in establishing and removing privacy-regulating boundaries; 3) incorporate aspects of nature into the building; and 4) encourage individuals to personalize their space to reflect positive aspects of their self and social identity²⁴⁹.

Another important design factor is that the design of therapeutic environments should meet individual client's needs. One client may need an environment with low levels of stimulation, while another may need higher levels of stimulation. The environment needs to be designed for low-levels of vulnerability, be able to match the stimulatory needs of individuals, and promote individual control over privacy regulation²⁵⁰. From a design standpoint, this means transformability in either building program, or in an individual space. The proposed project would need to allow for an individual to transform a space depending on the need of the users²⁵¹.

Analysis of Environment Psychology in Relation to this Project

When comparing the design elements that the authors, who come from a multi-disciplinary background, suggest there are a few in particular that seem to be the most

²⁴⁷ Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 246.

²⁴⁸ Ibid.

²⁴⁹ Ibid.

²⁵⁰ Holman and Stokols, "Environmental Psychology of Child Sexual Abuse," 249.

²⁵¹ Ibid.

important to encourage the well-being of a building's user. These elements include 1) flexibility and transformability, both in space and function; 2) a connection with nature either from views or direct access; 3) user control, allowing people to be able to control their own environment; 4) connecting spaces that encourage positive social interaction; and 5) the ability of the user to control their privacy.

These design elements formed the design parameters for the design aspect of this project in chapters seven and eight.

CHAPTER 4. DESIGN OF RELATED SPACES

In order to get an understanding of what kinds of design parameters are necessary to meet the needs of the different kinds of users who are involved in child maltreatment cases, this project looked at guidelines and suggestions for the design of spaces with similar building users. These include educational spaces, psychologists' offices, healthcare spaces, and office or workplace spaces.

Design of Psychologists' Offices/ Therapeutic Spaces

The American Institute of Architects (AIA) Academy of Architecture for Health published an article in their *Academy Journal* that evaluates the design of psychologists' offices. The authors, Watkins and Anthony, argue that at the time the article was written there had been research and discussion on the importance that environmental stressors, healing environments, and psychiatric facilities played on the interaction between psychologists and their clients during therapy sessions. However, they believed that the psychologist's offices had been largely absent from that discussion, though it is clear that the offices were significant to both psychologist and client²⁵².

The design of psychiatric facilities can have a great impact on patients' conditions and therapy. Watkins and Anthony state that the design of such facilities reflect the philosophy of care of the institution, and that it can, "reinforce rigid social programs and patterns of behavior among patients and staff."²⁵³ In other words, the design of a facility forces users to interact both with the environment, and socially together in a certain way. The authors state that many mental institutions are examples of how bad design can negatively affect or even exacerbate patient's conditions.

Some of these negative impacts include reinforcing the community's stigma against the mentally ill with fortress like facades. Radial plans and long corridors made

²⁵² Nicholas Watkins and Kathryn H. Anthony, "The Design of Psychologists' Offices: A Qualitative Evaluation of Environment-Function Fit," *The Academy Journal* (November 2011), <https://ideals.illinois.edu/bitstream/handle/2142/25508/The%20Design%20of%20Psychologists'%20Offices%3A%20A%20Qualitative%20Evaluation%20of%20Environment-Function%20Fit.pdf?sequence=3> (accessed March 3, 2014), 1.

²⁵³ Watkins and Anthony, "Design of Psychologists' Offices," 2.

of easy-to-clean materials are efficient for staff, but can distort a patient's perceptions²⁵⁴. On a smaller scale, common areas with fixed seating inhibit social interaction. In these cases the focus on staff efficiency has forced the patients to interact with the environment and each other in a way that worsens their illness.

Therapeutic settings should be a holding environment, comfortable and secure, allowing clients to feel safe to communicate sensitive information²⁵⁵. Psychologists should be able to use space to treat their clients, to alleviate and adapt their office to meet the client's stressors and needs²⁵⁶. The design of the office needs to allow flexibility and the ability to change the space as needed. Watkins and Anthony state past research has shown that clients communicate their psychological states through seating arrangements and manipulation of non-fixed physical features²⁵⁷. Psychologists can then influence the therapy of their client through their own manipulations of space.

From their interviews with psychologists, Watkins and Anthony came to understand what psychologists valued and needed in their spaces. These design elements were flexibility and the ability to adapt to change, control of their environment, windows and views of nature, a comfortable home-like appearance, and most importantly ensuring the privacy of their client. The authors argue that when all of these parameters were met, the office becomes an empathic and caring holding environment that reflects a psychologist's desire to have positive therapeutic interactions with their clients²⁵⁸.

As mentioned previously, psychologists need flexibility in their spaces to change the environment as needed to fit the therapeutic needs of their clients. This ties in with their need for the ability to control their setting, as they need to be able to control what their clients can and cannot see. Psychologists need to be able to keep a client's attention on the session at hand.

²⁵⁴ Watkins and Anthony, "Design of Psychologists' Offices," 2.

²⁵⁵ Ibid.

²⁵⁶ Ibid, 3.

²⁵⁷ Ibid, 2.

²⁵⁸ Ibid, 9.

While windows can act as a way to anchor a client to therapeutic settings by offering views to nature, a window overlooking a busy street or sidewalk could serve as a distraction²⁵⁹. Views into nature serve another benefit as it is well documented that healing gardens, views of nature, and legible building plans and signage contribute to positive psychological and physiological health²⁶⁰.

However, having windows could be problematic with the most important design feature of therapeutic settings: privacy. A psychologist's office needs to reflect privacy, so as to allow a client to feel safe in sharing private and potentially sensitive information. Multiple offices sharing a single waiting room space could be problematic, as clients could run into each other and they may not be comfortable with other people realizing they are there. Noise is a large concern with privacy, as conversations that take place within the office should not be heard from the outside²⁶¹.

The authors also concluded what should be avoided in the design of psychologist's offices. These elements included fluorescent lighting, which causes clients to feel discomfort and anxiety²⁶². Seating had to be comfortable, but not so comfortable as to make a client sleepy. Also to be avoided were abstract works of art that could cause negative interpretations, and painting the room in vibrant colors such as red and orange to which could create anxiety²⁶³.

Design of Educational Facilities

Chapter three looked at the effect the built environment has on children in general, and what their needs are in terms of being able to navigate their spaces, light, and color. This section focuses specifically on the design of schools and other educational facilities. As what children need in terms of design differs depending on their age, these design guidelines will look at childcare/ preschools, special needs schools, primary/ elementary schools, and secondary/ high schools.

²⁵⁹ Watkins and Anthony, "Design of Psychologists' Offices," 7.

²⁶⁰ Ibid, 2.

²⁶¹ Ibid, 9.

²⁶² Ibid, 10.

²⁶³ Ibid.

There are some design elements that are universal to school design no matter the age group of the students and must be addressed. These are color, texture, acoustics, and the definition of safe secure territories within the overall building²⁶⁴.

Childcare/ Preschools

Dudek stated that all preschools have four general building requirements. These requirements are 1) access to secure and protected outdoor space; 2) facilities for external play, or covered play space; 3) light, airy, well-ventilated internal environments; and 4) a range of different rooms to meet the school's curriculum and can provide for a full day of care for children²⁶⁵.

Architecture in pre-schools needs to be able to fascinate young children. It needs to be playful, light, and engaging. For this reason, simplistic open-plan arrangements should be avoided²⁶⁶. The environment should be designed to encourage sociability in the children, serving the needs of the more vulnerable children, while encouraging a sense of group belonging for all of the students²⁶⁷.

Marilyn Read looked specifically at how color was used as both a way to create spatial definition and as a wayfinding device in preschools. Read defines wayfinding as the ability of a person to reach their intended destination in an environmental layout²⁶⁸. She proposes that color can be used in both the interior and exterior of buildings to direct parents, caregivers, and children first towards the entries of what she calls child care facilities, or preschools, and then to their final destinations within the building²⁶⁹.

Color is an ideal design element to assist with wayfinding as it can be manipulated in a variety of building materials, and acts as a visual cue: helping people to

²⁶⁴ Mark Dudek, *Architecture of Schools: The New Learning Environment*, (Oxford: Architectural Press, 2000), 93.

²⁶⁵ Dudek, *Architecture of Schools*, 88.

²⁶⁶ Ibid.

²⁶⁷ Ibid.

²⁶⁸ Marilyn A. Read, "Use of Color in Child Care Environments: Application of Color for Wayfinding and Space Definition in Alabama Child Care Environments," *Early Childhood Education Journal* 30, no.4 (June 2003), doi: 10.1023/A:1023387607942 (accessed May 1, 2014), 233.

²⁶⁹ Read, "Use of Color in Child Care Environments," 234- 235.

focus on a particular area of a building²⁷⁰. Researchers recommend that the exterior colors of a building should blend in with the surrounding landscape, while interior colors for a child care environment should include soft warm color schemes, with accents of bright hues such as yellows, purples, and oranges²⁷¹. Children's environments should not be predominantly white, gray, or off-white as they give a feeling of sterility, offer limited sensory stimulation, and can cause eye strain from their high light reflectance values²⁷².

Read suggests that preschools should incorporate both light and dark colors from nature, as children need a variety of colors to provide them a balanced environment that reflects their moods and personalities²⁷³.

Special Needs Schools

Dudek defines children with special needs as those, "who find it significantly harder to learn than most children of the same age or those who have a disability which makes it difficult for them to use conventional educational facilities²⁷⁴." These learning difficulties may be the result of physical disabilities, medical or health problems, emotional, or behavioral problems²⁷⁵. Another concern that must be kept in mind is that there can be a disparity between the child's physical and mental development. These difficulties tie into the key challenge in designing special needs schools: how to design spaces to integrate individuals with these difficulties into school life²⁷⁶.

Dudek suggests elements that should be incorporated into the design of special needs schools. These elements are the use of daylight, user ease of movement, incorporation of sensory stimulation, and keeping to the child scale. Of these, the most

²⁷⁰ Read, "Use of Color in Child Care Environments," 235.

²⁷¹ Ibid.

²⁷² Ibid.

²⁷³ Ibid, 236.

²⁷⁴ Dudek, *Architecture of Schools*, 84.

²⁷⁵ Ibid.

²⁷⁶ Ibid, 85-86.

important is the need of allowing daylight to penetrate into the building²⁷⁷. The environment needs to take into account the user's ease of movement around the building. However, ease of movement for students could lead to distraction from learning. Spaces should be organized in easily identified group bases to mitigate this²⁷⁸.

As stated in chapter three, children need stimulation from their environment, without being overwhelmed from over stimulation. This especially holds true for children with special needs. The design of their spaces should incorporate design elements that stimulate sensory aspects such as sight, touch, and aroma²⁷⁹. An example of this kind of space would be a sensory garden, which has therapeutic benefits for mentally handicapped children²⁸⁰. The use of predominantly harsh primary colors and synthetic materials like plastic should be avoided. Instead, the design should incorporate natural materials with distinctive textures and colors²⁸¹.

Primary/ Elementary Schools

One of the most important features specific to elementary school design that is different from preschool and high school design is in the great diversity in the physical and psychological make-up of the students. There is a great difference from a 5 year-old in kindergarten and a 10 or eleven year old in either fifth or sixth grade²⁸².

This issue can be compounded as some schools integrate both preschool and elementary school in the same campus. If this is the case, then the preschool needs to have separate territories, as preschoolers have very different needs to older children. Dudek suggests that the preschool portion of the school have its own entrance and classrooms, but that it can share spaces such as music rooms and sports or assembly halls²⁸³.

²⁷⁷ Dudek, *Architecture of Schools*, 85-86.

²⁷⁸ Ibid, 86.

²⁷⁹ Ibid.

²⁸⁰ Ibid.

²⁸¹ Ibid, 87.

²⁸² Ibid, 88.

²⁸³ Ibid.

This sharing of spaces needs a balance. Preschoolers need to feel safe from older children, while still feeling as if they belong to the school community²⁸⁴.

In the present day, educational architecture projects are more likely to be the refurbishment and remodeling of existing schools, rather than new construction²⁸⁵. However, the architectural needs of students remain the same. These include greenery in external areas, the importance of common and circulation spaces as meeting points to enhance the social life of students, and most importantly the safety of the students in the school and from external threats²⁸⁶. Dudek also suggests that classrooms should be carpeted. However, as stated in chapter three, carpets outgas volatile organic compounds that can negatively affect the health of those in the space. This could be mitigated by either a careful choice in carpet that does not outgas VOCs or a different choice of flooring materials.

Secondary/ High Schools

While the environmental needs of children change as they get older, high school students still need spaces that address color, texture, acoustics, and safety²⁸⁷. Unlike younger students that focus on their immediate environment, older students are more interested in their wider social and spatial environment²⁸⁸.

High schools are generally larger and serve a far greater number of students than elementary schools. High school curricula have more specialized subjects, so students move around their campus more frequently²⁸⁹. Curricular areas should be organized to minimize travel time between classes. Examples would include placing art classes closer to circulation areas to allow the movement of supplies and props; while science and technology classes should be placed near each other as the subjects are logically related

²⁸⁴ Dudek, *Architecture of Schools*, 90.

²⁸⁵ Ibid.

²⁸⁶ Ibid.

²⁸⁷ Ibid, 93.

²⁸⁸ Ibid, 95.

²⁸⁹ Ibid.

to each other²⁹⁰. This transience emphasizes the importance of the circulation spaces, which should be interesting and spatially varied to reduce conflict during class changes²⁹¹.

Other important design guidelines include: maximizing natural daylight to all parts of the school to produce the best teaching conditions; and taking advantage of local breezes by ensuring natural cross-ventilation.

Design of Healthcare Spaces

According to Guenther and Vittori, existing healthcare practices are environmentally paradoxical²⁹². The materials and methods of hospitals create large amounts of pollution, causing a significant environmental burden. Healthcare adds to the chemical contamination of the environment, which ultimately makes people sick²⁹³. The paradox continues as people are hooked into looking at what new technology will be the magic bullet to cure health problems, when it is the creation of these technologies that lead to ecological health changes that cause new diseases and problems. Healthcare is such a major problem in the United States, that the country's expenditure surpasses 17% of its annual Gross Domestic Product (GDP)²⁹⁴.

Sternberg concurs that hospitals can cause negative health outcomes, but instead focuses on how the design of the environment contributes to negative outcomes. According to Sternberg, hospitals were originally places people went to die, not a place for healing²⁹⁵. Unfortunately, though times and medical practices have changed, this fact has not. In 1999 statistics showed that 98,000 Americans died in

²⁹⁰ Dudek, *Architecture of Schools*, 95.

²⁹¹ Ibid.

²⁹² Robin Guenther and Gail Vittori, *Sustainable Healthcare Architecture*, (Hoboken, NJ: John Wiley & Sons, 2008), 62.

²⁹³ Guenther and Vittori, *Sustainable Healthcare Architecture*, 62.

²⁹⁴ Ibid, 70.

²⁹⁵ Esther M. Sternberg, *Healing Spaces: The Science of Place and Well-being*, (Cambridge, MA: Harvard University Press, 2009), 219.

hospitals annually as a result of preventable medical errors; more than in car accidents, breast cancer, and AIDS²⁹⁶.

Some of these preventable medical errors could have been prevented simply by reducing the noise in hospitals. Noise is one of the biggest stressors in hospitals, causing increase in heart rate and blood pressure. It interferes with sleep causing poor sleep quality in patients, and healthcare professionals when they return home²⁹⁷. As stated in chapter three, noise causes stress in workers, and worker satisfaction has a huge impact on job productivity.

When germs were discovered, hospital design focused on cleanliness and keeping spaces sterile. Hospitals were clad in materials— metal, stone, tile, and other acoustically reflective materials— that were easy to clean, but which made the environment colder, noisier, and less comfortable²⁹⁸. A Swedish Hospital replaced their ceiling tiles with a sound-absorbing material to cut down on noise and found that the health outcomes of their patients increased, there were fewer hospitalizations, and staff satisfaction had increased and that they reported an increase in their sleep quality at home²⁹⁹.

Noise is not the only factor that increases stress in building users. As hospitals grew to accommodate new technologies, they placed more emphasis on machines, rather than on people and healing. Patients had to navigate through larger, strange and frightening environments filled with machines. This increased the stress and anxiety in people who were already ill and frightened³⁰⁰. Hospitals, whose goal is to heal, should try to eliminate stress since it slows healing, predisposes the body to severe and more frequent infections, and compounds the effects of illness³⁰¹.

Architects in healthcare design are moving towards an evidence-based design model, which uses the physiological and health-outcome measures to evaluate the

²⁹⁶ Sternberg, *Healing Spaces*, 216.

²⁹⁷ Ibid, 218

²⁹⁸ Ibid, 219

²⁹⁹ Ibid, 218

³⁰⁰ Ibid,

³⁰¹ Ibid, 226- 227

health benefits of architectural features in hospitals³⁰². These measures include length of patient stay, amount of pain medication, complication rates, patient stress, mood, and satisfaction indices³⁰³. This shift to evidence-based design has echoed the shift in hospitals to patient centered care. This shift in hospital design not only focuses on patients, but their families as well³⁰⁴.

The goals of evidence-based design for healthcare facilities are: patient control, positive distractions, a reduction in environmental stress, social support, and a connection with nature³⁰⁵. Through their design, hospitals can encourage healing, facilitate technology, retain staff, and reduce costs³⁰⁶.

Guenther and Vittori state that contact with nature fosters human health, productivity, and well-being. The positive effects specific to individuals are: improved emotional functioning, increased attention capacity, increased feelings of self-worth, a decrease in mental and physical strength, and the strengthening of group ties by promoting pro-social behaviors³⁰⁷. It has been consistently shown that contact with nature causes a reduction in stress and improvement in mood. However, all nature is not equally beneficial as trees, water features, and flowers are more effective than just a grassy lawn³⁰⁸.

Landscape views and generous daylight in hospitals have a positive effect on patient and financial outcome³⁰⁹. "Sunlight", called daylight when referred to natural lighting in buildings, is associated with a decrease in pain, stress, and depression. It is associated with positive moods and shorter hospital stays. Patients in bright rooms have lower mortality rates, and use less pain medication³¹⁰.

³⁰² Sternberg, *Healing Spaces*, 215

³⁰³ Ibid.

³⁰⁴ Jayne Merkel, "Healthcare Architecture Now," *Architectural Record* 191 (March 2003): 11-17. Academic Search Premiere (accessed May 1, 2014), 14.

³⁰⁵ Merkel, Jayne, "Healthcare Architecture Now," 15.

³⁰⁶ Ibid, 14.

³⁰⁷ Guenther and Vittori, *Sustainable Healthcare Architecture*, 85.

³⁰⁸ Ibid, 85-86.

³⁰⁹ Ibid, 86.

³¹⁰ Ibid.

Hospitals that have taken evidence-based design into consideration when designing the environments of their hospitals have seen a positive outcome with the health and satisfaction of their patients, and with their staff.

Analysis: Design of Related Spaces

The most interesting part about looking at different kinds of spaces is what parts of their design goals overlap. All of the types of related spaces looked at in this section serve a vulnerable population of people, and all have similar requirements. In general, the architecture of buildings that are similar to these types needs to have a few key elements to be successful. These are: access to nature and daylight, safety, privacy, flexibility and transformability of spaces, and the ability of the user to control their own environment. This includes the ability to control the ambient environment, which as stated in chapter three, are the unseen elements in the physical environment such as noise and odor.

CHAPTER 5. CASE STUDIES

In order to ensure that the data gathered from the case studies chosen had rigor, they were held against a specific evaluation method. The cases studies fell into two types of building uses: educational facilities for children and facilities dedicated to healthcare and healing.

Case studies were chosen from buildings that either won awards based on a panel of experts in their field or a panel of architects; or were chosen by a similar panel to be published as exemplary examples of their type. While not always possible, the case studies were also chosen based on whether they had positive post-occupancy evaluations, or positive reactions from the end-users of the facility after the buildings were inhabited.

Once the case studies were chosen they were analyzed for their use of lighting, color, spatial configuration, relationship to the outdoors, connection of spaces, building typology, material, privacy of the user, transformability, and security. The goal of this portion of the project was to extract the elements of design that are vital for creating healthy spaces that have a positive impact on the user's wellbeing. By comparing cases from a variety of building types and locations that cater to a variety of different user types, these general design elements should be clear.

Educational Facilities

In general, the educational facilities chosen as case studies are related to the subject of this thesis by either serving a vulnerable population of children, or focusing in building strong local communities. The schools were chosen out of the *PEB Compendium of exemplary educational facilities*, published by the Program on Educational Building of the Organization for Economic Co-operation and Development in 2006. The OECD is an international organization formed by the governments of 30 different countries whose goal is to address the economic, social, and environmental challenges that occur

through globalization³¹¹. The educational facilities published in the text were chosen by a jury made up of architects, a school administrator, the head of the equivalent to the British Department of Education, and an economist.

The schools chosen are a variety of sizes, and serve differing populations of end users. They vary from small pre-schools that serve around 60 students, to large facilities that serve over 300 students. The schools serve children from an age range of pre-school up through high school.

Case Study 1: Fukushima Prefectural Koriyama School for the Physically Handicapped
Fukushima, Japan
Kazuo Watabe, Yui Architects & Planners
2001



Figure 5.1: Exterior of Fukushima Prefectural Koriyama School for the Physically Handicapped.
Source: Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 38.

The Fukushima Prefectural Koriyama School for the Physically Handicapped is located in Fukushima, Japan and was designed by Kazuo Watabe and Yui Architects and Planners. It was opened in 2001 and serves 170 elementary, middle, and high school

³¹¹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities 3rd Edition*, (Paris: OECD, 2006).

students. The facility is the largest of the educational facilities looked at in this project at 13,525m².

The school has won three Japanese design awards: the 2004 Architecture Institute of Japan (AIJ) Prize in the Architectural Design Division category³¹², the 22nd Architectural Award of Fukushima Prefecture³¹³ in 2004, and the 2003 Good Design Award from the Japan Institute of Design Promotion³¹⁴.



Figure 5.2: Left: Courtyard in Fukushima Prefectural Koriyama School for the Physically Handicapped. Right: Classrooms seamlessly transition into outdoor active space from glass sliding doors.
Source: Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 39.

³¹² Architectural Institute of Japan, "AIJ Prizes 2004," AIJ Architectural Institute of Japan, 2004, <http://www.aij.or.jp/eng/prizes/prize/prize04.html> (accessed April 5, 2014).

³¹³ Kazuo Watabe/ Yui Architects & Planners, "Kazuo Watabe," Kazuo Watabe/ Yui Architects & Planners, <http://homepage2.nifty.com/yui-kenchiku/kazuowatabe.html> (accessed April 5, 2014).

³¹⁴ Japan Institute of Design Promotion, "2003 Good Design Award," Good Design Award, <http://www.g-mark.org/award/describe/29333?locale=en> (accessed April 5, 2014).

Physical Description

The school is located in a large two-story building made with a steel-frame and reinforced concrete³¹⁵. The first floor of the building holds the elementary school, while the second floor holds both the middle and high schools³¹⁶. The classrooms are small, designed to hold from 3-8 students. The architecture boasts a “barrier-free” design with transparent partitions between classrooms, corridors, and outdoor activity areas so children can see what activities are happening³¹⁷. The main vertical circulation is through the large spiral ramp in the center of the school.

Design:

In order to understand the needs of children with disabilities and to ensure that the design would meet these needs, the architects held a workshop with the future users of the buildings. The children presented pictures, poems, models, and other items under the title “My Ideal School”, which the architects used to help come up with the image of the architecture³¹⁸. These workshops produced the ideas for the spiral ramp and barrier-free design of the classrooms³¹⁹.

The architecture was designed to allow the younger and older children to mix, while reinforcing close bonds with their peers in their immediate grade level. While spaces like classrooms are defined, as children move through the school they can form larger groups to interact with, allowing them to form flexible relationships³²⁰. The spaces were structured so the building’s users would experience a sequence of dramatic

³¹⁵ Kazuo Watabe/ Yui Architects & Planners, “Fukushima Prefectural School for the Physically Handicapped,” Kazuo Watabe/ Yui Architects & Planners, <http://homepage2.nifty.com/yui-kenchiku/kazuowatabe.html> (accessed April 5, 2014).

³¹⁶ Ibid.

³¹⁷ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 37.

³¹⁸ Ibid.

³¹⁹ Kazuo Watabe/ Yui Architects & Planners, “Fukushima Prefectural School for the Physically Handicapped.”

³²⁰ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 37.

changes as they moved from one space to another³²¹. Light wells and high sidelights bring daylight into the building, and lead the children from space to space³²².

User Reaction

According to the OECD, users of the building have stated that the layout of the building is well-thought out, allowing the school to remain bright even in winter. The layout has also influenced the children to become more active³²³.

Analysis

Unfortunately, there were no reviews or commentary about the success of having transparent partitions between classrooms, corridors, and activity spaces. The OECD states that this enhances the students' desires to participate in what is happening in class³²⁴. However, there is no mention on whether these unobstructed views lead to distraction in the students in the classrooms. As stated in various sources in the literature, while having views to nature increases a person's well-being, views to active areas can make children distracted.

The school does allow building users to connect with nature, as the same transparent partitions that may cause distraction, also breaks the barrier between inside and outside. Each classroom and corridor on the second floor has access to daylight and nature through exterior windows along the exterior, interior courtyards, and outdoor activity areas. Unfortunately a first floor plan was not available, so only the second floor could be analyzed, though from pictures it seems as though this access to the outdoors is continued on the first floor.

Besides the large interior ramp that allows students in wheelchairs free access between floors, pictures of the classrooms show that there is no level change between

³²¹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 37.

³²² Ibid.

³²³ Ibid.

³²⁴ Ibid.

classrooms, corridors, and activity rooms. This allows all children, no matter the physical disability, to move around the school freely.

Case Study 2: North Kildare Educate Together School

Celbridge, Co. Kildare, Ireland

Grafton Architects

2003



Figure 5.3: Courtyard of North Kildare Educate Together School.

Source: Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 110.

The North Kildare Educate Together School is a primary school that integrates two specialized teaching classrooms for children with autism with the rest of the student body. It is located in Celbridge, County Kildare, Ireland; and opened its doors in 2003. The 1,750m² school was designed by Grafton Architects and serves 250 students.

The school has received two architectural awards: the 2003 Downes Medal from the Architectural Association of Ireland and the 2004 award from the Royal Institute of Architects of Ireland Awards. The school was also awarded a special mention in the 2004 OPUS Architecture and Construction Awards³²⁵.

³²⁵ Grafton Architects, "Awards," Grafton Architects, <http://www.graftonarchitects.ie/Awards> (accessed April 5, 2014).

Physical Description

The School is a one-story building with ten class rooms, two of which are specialized classrooms for children with autism³²⁶. The plan is arranged around a central grassy courtyard, with the main circulation in a ring around the courtyard.

As the Department of Education & Science requires that schools are single story, when possible, and constructed with exposed concrete block work, the architects designed the school with a precast concrete roof³²⁷. The roof was clad in copper, and punctured with light and ventilation chimneys in each classroom³²⁸.

Design

One of the central concerns of the design was to create a seamless transition from the general school to the classrooms for children with autism. The requirements for the project were created by specialists working with parents, teachers, the student body, and the Department of Education and Sciences. The goal was to incorporate these requirements in a way to integrate students with autism into the overall school³²⁹.

The classrooms were designed as studios, each including a den and an enclosed exterior garden. The architects state that, “each classroom enjoys the democracy of relating to the sun path, throughout the seasons³³⁰” relating to the importance in the design of bringing daylight into the spaces, and to the school’s theme of “bringing the outdoors in³³¹”.

³²⁶ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 111.

³²⁷ Grafton Architects, “North Kildare Educate Together School,” Grafton Architects, <http://www.graftonarchitects.ie/North-Kildare-Educate-Together-School> (accessed April 5, 2014).

³²⁸ Grafton Architects, “North Kildare Educate Together School.”

³²⁹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 111.

³³⁰ Grafton Architects, “North Kildare Educate Together School.”

³³¹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 111.



Figure 5.4: Left: Classrooms filled with daylight.
Right: General purpose hall with large skylight to capture south sun.
 Source (Left): Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 110.
 Source (Right): Ross Kavanagh, *RK GP Room and Structure*. Photograph. Grafton Architects, “North Kildare Educate Together School,” Grafton Architects, <http://www.graftonarchitects.ie/North-Kildare-Educate-Together-School>.

The public areas were defined through the use of their materials: brick walls, plinths, and terracotta windowsills to engage the senses through tactility and rich colors³³². The roof was designed to give the building a sense of weight and spatial complexity³³³.

User Reaction

The principal of the school, Rita Galvin, had positive words to say about the design of the school. She complimented the architect’s use of light, circulation spaces that overlook a central courtyard, and the den area integrated into each classroom³³⁴. According to her: the student and teachers all love the den areas that can be used as a group or individually. She also stated, “One of the most remarkable features of the building is the wonderful light filled classrooms and corridors throughout.”³³⁵

³³² Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 111.

³³³ Ibid.

³³⁴ Ibid.

³³⁵ Ibid.

This positive outlook of the school's design is echoed by the "Whole School Evaluation Report" of the school, based on a school inspection conducted by the Department of Education and Skills in 2013. The evaluation found that one of the main strengths of the school was that, "pupils are educated in an attractive, well-maintained and well-resourced learning environment."³³⁶ The report also stated that the school was managing their resources effectively and that the building has a child-friendly design and is well-maintained³³⁷.

Principle Gavin had specific praise for the special classrooms for children with autism. "This unit is now a prototype for future units in the country. Our school community is very proud of our unique building. The staff feels privileged to work with the children in an educational space so appropriately designed to meet all our needs."³³⁸

Analysis

The school allows for the users to connect with nature, while still providing a sense of privacy and ownership through the private garden areas that back each classroom. The architects positioned windows in classrooms to allow daylight into the classrooms, the glare from the sun is directed onto the walls and away from the desks and eyes of the students.

The classrooms for the students with autism are separated from the other classrooms by the central courtyard, but are connected to the shared spaces at the front of the building. This shows physically in plan that the students with autism have their own space away from the student body to meet their own needs, while still integrating them with the rest of the student body in the shared spaces.

³³⁶ Department of Education and Skills, *Whole School Evaluation Report: North Kildare Together National School*, (Ireland: Department of Education and Skills, April, 2013), http://www.education.ie/en/Publications/Inspection-Reports-Publications/Whole-School-Evaluation-Reports-List/report1_199951.pdf (accessed April 5, 2014), 1.

³³⁷ Ibid, 2.

³³⁸ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 111.

Case Study 3: Fawood Children's Centre

London, United Kingdom
Alan Lai, Alsop Design Ltd.
2004



Figure 5.5: Exterior of Fawood Children's Centre at night.

Source: ALL Design, "Fawood Children's Centre," ALL Design, <http://www.all-worldwide.com/what/education/fawood/> (accessed April 22, 2014).

The Fawood Children's Centre in north-west London is a preschool designed by Alan Lai of Alsop Design Ltd. as part of the regeneration of the Stonebridge Housing Estate³³⁹. The 1,600 m² school opened in 2004 with a maximum capacity of 75 students³⁴⁰.

Out of the five educational facility case studies looked at for this project, the Fawood Children's Centre in London is the closest programmatically to the possible future design of this thesis. The school is not just a preschool, but integrates services for children and families into the building. These services include family support and outreach, child and family health services, and access to training and career

³³⁹ ALL Design, "Fawood Children's Centre," ALL Design, <http://www.all-worldwide.com/what/education/fawood/> (accessed April 22, 2014).

³⁴⁰ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

opportunities³⁴¹. The building also includes nursery facilities for autistic and special needs children³⁴². The local area was undergoing large-scale regeneration so the building was to be a focus for the community³⁴³.

The building has received three awards: the 2006 Civic Trust Award, the 2005 RIBA London Region Award, and the 2005 Royal Fine Art Commission Building of the Year Special Award. It received a commendation in the 2005 AIA/UK Excellence in Design Awards, and made the short-list for the 2005 RIBA Stirling Prize³⁴⁴.

Physical Description

The building is made up of internal nursery facilities, office spaces, and training facilities made of recycled shipping containers that are connected by wooden decking. The separate spaces are covered by a superstructure with a partially translucent roof structure with colorful mesh walls that enclose the open play areas. The superstructure encloses the play areas from the weather, but they are not heated³⁴⁵.

The roof is made of a mixture of opal polycarbonate roof cladding and pink powder-coated profiled steel cladding, the structure made of galvanized steel³⁴⁶. The walls are made of two types of stainless steel mesh, with the bottom portion of the wall using a denser mesh to add to the building security, and the top of lightweight mesh shaped into rippling curves with colored acrylic³⁴⁷.

The offices and nursery spaces are made of three groups of three-story shipping containers that are connected by walkways, projecting balconies, and steel staircases. The outdoor play spaces between the containers include: a timber decking piazza

³⁴¹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

³⁴² Arcspace.com. Fawood Children's Centre.

³⁴³ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

³⁴⁴ ALL Design, "Fawood Children's Centre."

³⁴⁵ Ibid.

³⁴⁶ Arcspace.com, "Fawood Children's Centre," Arcspace.com, June 06, 2005, <http://www.arcspace.com/features/alsop-architects/fawood-childrens-centre/> (accessed April 22, 2014).

³⁴⁷ Ibid.

surrounded by a willow tunnel, soft play area, outdoor stage area, water gardens, and a climbing platform³⁴⁸.



Figure 5.6: Interior nursery spaces made of recycled shipping containers are enclosed in a mesh superstructure that allows the children to play outside no matter the weather.

Source (Left): Alan Lai/ Alsop & Partners. *Fawood Childrens Centre Interior*. Photograph. Arcspace.com, “Fawood Children’s Centre,” Arcspace.com, June 06, 2005, <http://www.arcspace.com/features/alsop-architects/fawood-childrens-centre>.

Source (Right): The Architecture of Early Childhood. “Will Alsop’s Colourful Fawood Children’s Centre Using Old Shipping Containers.” The Architecture of Early Childhood. September 25, 2011. <http://www.thearchitectureofearlychildhood.com/2011/09/will-alsops-colourful-fawood-childrens.html>

Design

The Centre’s program is based on the idea that providing locally based, easily accessible, integrated services for families result in long term benefits for the community as a whole. The design focuses on natural light and visual harmony to create a “playbox” for dreaming and learning³⁴⁹.

The design had to meet not only the needs of the children, but the surrounding community. The concept of the design was in creating an environment that supported children making choices, encouraged socialization, built confidence, and enabled independent thinking. The architect embodied the concept in the recycling of shipping containers that were connected by wooden decking with under floor heating³⁵⁰.

³⁴⁸ Arcspace.com, “Fawood Children’s Centre.”

³⁴⁹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

³⁵⁰ Ibid.

User Reaction

The design of the Centre has received praise from the parents of the students, particularly about the advantage of having a protected and covered “outside” space. Ines Djeridi, parent to one of the four-year-old students stated, “it’s a very child-friendly building and the security is great. It’s like a theme park and gives the children plenty of opportunity to get lots of exercise.”³⁵¹ Another parent commented that the design is practical, and that “the children are out in the fresh air without actually being outside.”

Ofsted’s Inspection report for the facility for the London Borough of Brent, independently confirmed the positives that the parents brought up. The report stated that the children get a lot of fresh air and exercise, and that the physical environment allowed them to learn about risks in a safe environment. The report went on to say that the children “are secure and happy with a sense of belonging and well-being” and that the users of the building feel safe and confident³⁵².

Analysis

While this facility is located in a completely different climate than Hawai’i, the strategies that the architects applied could be successful in Hilo as well. That is a superstructure that is open to allow natural ventilation, but provides protection from harsh sun, or rain, with enclosed private spaces for offices and services. While not relevant to this project, the reuse of shipping containers for buildings is discussed in architectural practice in Hawai’i.

³⁵¹ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

³⁵² Office for Standards in Education, Children’s Services and Skills, *Inspection Report for Fawood Children’s Centre*, by Jane Wotherspoon, Manchester, UK: Ofsted, 2011, <http://www.curzoncrescent.org.uk/wp-content/uploads/2013/11/Ofsted-366385-Fawood-Childrens-Centre.pdf> (accessed April 22, 2014), 6.

The architects state that the children are free to move in and out of the heated nurseries without the need for coats and outdoor shoes³⁵³. However in the pictures of the Centre they are quite bundled up, and the inspectors speculated in their report that attendance drop off at the Centre in the winter could have been a result of the weather³⁵⁴. While this is not a concern in the warm climate in Hawai'i, it is something to take into account in cold climates.

Healthcare and Healing Facilities

The healthcare facilities chosen as case studies for this project were either used as a case study in publications looking at successful healthcare design, or a recipient of the AIA National Healthcare Design Awards. The healthcare facilities chosen as case studies for this project that were not recipients of the AIA National Healthcare Design Awards were published in *Sustainable Healthcare Architecture* by Robin Guenther and Gail Vittori. The authors worked both with architects and healthcare professionals who focus on sustainability. By consulting a mix of professions, the case studies should show excellency in design, as well as user satisfaction from both patients and healthcare professionals.

³⁵³ Organization for Economic Co-operation and Development, *PEB Compendium of Exemplary Educational Facilities*, 17.

³⁵⁴ Children's Services and Skills, *Inspection Report for Fawood Children's Centre*.

Case Study 4: REHAB Basel Centre for Spinal Cord and Brain Injuries
Basel, Switzerland
Herzog & De Meuron
2002



Figure 5.7: Exterior of REHAB Basel Centre for Spinal Cord and Brain Injuries.

Source: Margherita Spiluttini.165_CP_0305_700_MS. Photograph. Herzog & DeMeuron. "165 REHAB, Centre for Spinal Cord and Brain Injuries." <http://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries/IMAGE.html> (accessed April 5, 2014).

Physical Description

The center is a three story building, with the patient rooms located in a ring around the exterior of the second floor, so patients with wheelchairs have an easier time getting around³⁵⁵. Each patient room has a spherical skylight that brings daylight into the room. The patient rooms also open with sliding doors to wood decks, wide enough to fit rolling beds, around the perimeter of the building³⁵⁶. The building has a green roof that is visible from the third floor

The materials used in the building are untreated oak, larch, ironwood, waxed pine for interior walls and ceiling paneling, and sealed oak floors³⁵⁷.

³⁵⁵ Guenther and Vittori, *Sustainable Healthcare Architecture*, 334.

³⁵⁶ Ibid, 336.

³⁵⁷ Ibid.



Figure 5.8: Interior garden courtyard brings daylight into the interior of the building.

Source: Margherita Spiluttini.165_CP_0305_711_MS. Photograph. Herzog & DeMeuron. "165 REHAB, Centre for Spinal Cord and Brain Injuries." <http://www.herzogdemeuron.com/index/projects/complete-works/151-175/165-rehab-centre-for-spinal-cord-and-brain-injuries/IMAGE.html> (accessed April 5, 2014).

Design

The building was organized like a small town as patients may stay for as long as eighteen months³⁵⁸. The indoors and outdoors are connected, while there are separations between private and public spaces. Space is flexible, with areas without a defined purpose in which patients can spend free time, linger between treatment sessions, or meet family and friends³⁵⁹.

The hospital has a non-institutional ambience from the untreated materials used in the building.

User Reaction

While there is no published post-occupancy report, it can be seen from the center's website that they do take pride in their building. They offer public tours of the buildings on four days of the year to show off both their program, and the

³⁵⁸ Guenther and Vittori, *Sustainable Healthcare Architecture*, 335.

³⁵⁹ Ibid.

architecture³⁶⁰. The center has published a booklet on the anthropological and architectural considerations that went into the design. Another sign of the center's pride in their building is that they sell an architectural film on their website that was created of the center and that features the chief physician, as well as one of the architects from Herzog & De Meuron³⁶¹.

Analysis

The REHAB Basel Centre for Spinal Cord and Brain Injuries is a model for putting patients and building users first in hospital design. There are spaces provided for patients, friends, and families to interact together while waiting. All of the patient rooms are located on one floor so patients do not have to change floors to get around. All of the patient rooms allow for patients to be taken out to connect directly with nature through a wraparound porch that is wide enough to fit the beds.

The entire building has access to natural daylight from a series of interior courtyard gardens that are cut vertically through the garden. No matter where one goes in the building there is access to views of nature and daylight. The materials of the building are natural woods, getting rid of the acoustically reflective materials traditionally used in hospitals.

Overall the building makes sure to connect the building users with nature and daylight, while making maneuverability easier for visitors.

³⁶⁰ REHAB Basel, "Guides," REHAB, <http://www.rehab.ch/Fuehrungen.225.0.html> (accessed April 22, 2014).

³⁶¹ Ibid.

Case Study 5: University of Minnesota Amplatz Children's Hospital
Minneapolis, Minnesota
Tsoi/ Kobus & Associates
2011



Figure 5.9: Exterior of University of Minnesota Amplatz Children's Hospital
Source: Nick Merrick. *Exterior Detail*. Photograph. American Institute of Architects, "University of Minnesota Amplatz Children's Hospital," 2013 <http://www.aia.org/practicing/groups/kc/AIAB099701>.

The University of Minnesota Amplatz Children's Hospital is a new 319,551 square foot building located on the University of Minnesota Medical School's Riverside Campus. The building consolidated all of the pediatric programs and inpatient units. The building has received eight awards including the American Institute of Architects 2013 National Healthcare Design Award, the Boston Society of Architects Healthcare Award, and the IIDA New England Best Healthcare Project³⁶².

Physical Description

The hospital is a seven-story building containing 96 single-occupancy patient rooms, located along the exterior of the building, with supporting spaces in the center³⁶³. The building has a decentralized floor plan, which reduced the nurses' typical

³⁶² Tsoi/ Kobus & Associates, "News & Awards," *Tsoi/ Kobus & Associates*, http://www.tka-architects.com/awards_hc.html.

³⁶³ Tsoi/ Kobus & Associates, "University of Minnesota Masonic Children's Hospital," *Tsoi/ Kobus & Associates*, http://www.tka-architects.com/hc_all_uminn_amplatz.html.

travel distance during a typical shift. The “modified race track organization” of the rooms allow nurses to remain close to patient rooms, and to retain direct visual access to rooms and hallways while decreasing congestion and noise³⁶⁴. The hospital also includes a roof garden, which helps with storm water management³⁶⁵, and an entry pavilion surrounded by park-like landscaping³⁶⁶.

Design

The design of the project was based on the mission of the hospital, which is, “to empower patients and involve families in a child’s care”³⁶⁷. Keeping that in mind, the architects based their design on safety, increasing efficiency and caregiver time with patients, and creating a memorable brand or theme. This was achieved through the interior design of the building.

The interior design of the building was a challenge, as pediatric healthcare facilities need to be welcoming and appealing to building users of all ages from infants to adult visitors³⁶⁸. The design of each floor of the hospital is inspired by a unique global habitat for example: grasslands, rainforests, oceans, lakes, and deserts³⁶⁹. This acts as a wayfinding tool for building users.

Another important factor for the building design was maximizing daylight in the building. Each patient room has a large window to provide light and a view of the surroundings.

³⁶⁴ Tsoi/ Kobus & Associates.

³⁶⁵ American Institute of Architects, “University of Minnesota Amplatz Children’s Hospital,” *American Institute of Architects*, 2013 <http://www.aia.org/practicing/groups/kc/AIAB099701>.

³⁶⁶ Tsoi/ Kobus & Associates.

³⁶⁷ American Institute of Architects, “University of Minnesota Amplatz Children’s Hospital.”

³⁶⁸ Ibid.

³⁶⁹ Ibid.

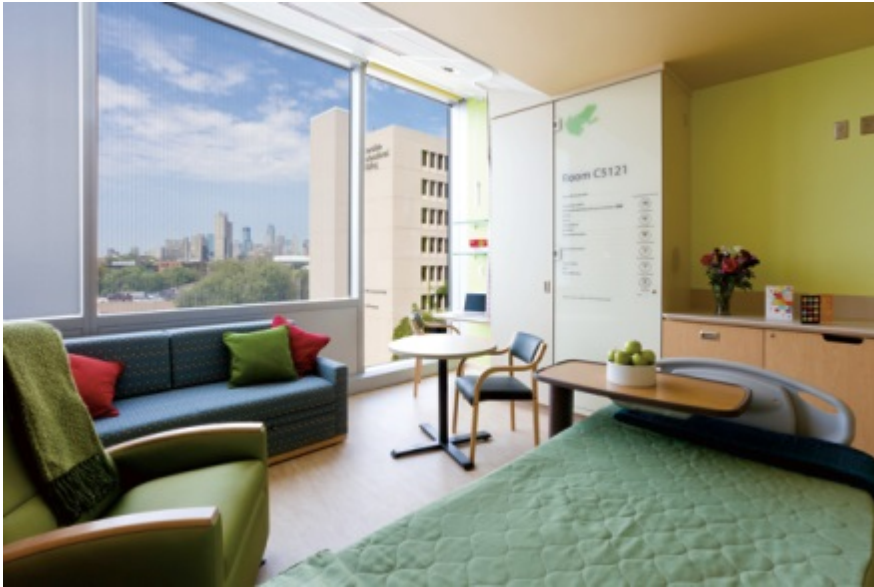


Figure 5.10: Each patient room is cheerfully painted and includes a large window to allow natural light and views outside.

Source: University of Minnesota Amplatz Children's Hospital. *Private, family-friendly patient rooms are designed to improve outcomes and promote healing.* Photograph. Marian Deegan, "University of Minnesota Amplatz Children's Hospital," *MD News*, February 12, 2011, http://www.mdnews.com/news/2011_02/05838_feb2011_university-of-minnesota.aspx.

User Reaction

Families that visit the hospital have had positive feedback about the building design. Jeffery Fort, a father of one of the patients, stated, "It's brighter and a lot more homey," when comparing the new hospital to a previous one³⁷⁰. Kathie Taranto, president of the hospital, overheard children saying, "I can't wait to get sick," during the hospital's open house³⁷¹. It is obvious that visitors appreciate the building design when healthy children are so comfortable they want to be able to stay in the hospital.

Analysis

The hospital uses bright and pastel colors in the common areas, creating comfortable spaces for visitors. The design is family-oriented, catering to the needs of the family by giving them space to inhabit while they stay with their children. This is achieved through family lounges and large single-patient rooms with enough space for families to comfortably visit or spend the night.

³⁷⁰ Bob Von Sternberg, "Young Patients Handled with Care," *Star Tribune*, April 30, 2011, <http://www.startribune.com/local/minneapolis/121029404.html>.

³⁷¹ Sternberg.

The building includes exterior green spaces and a healing garden on the roof, allowing visitors to have direct contact with nature. Each patient room has a large floor-to-ceiling window that gives patients and visitors a direct view outside, while also bringing in natural daylight.

Overall, the building is successful in creating comfort for all the building users from patients, their families, and the healthcare professionals. Public spaces are painted in lively colors to make the spaces more welcoming, and patient rooms are given natural light and views to the outdoors. The circulation allows ease of access to patient rooms for healthcare professionals.

Overall Analysis of Case Studies:

All of the case study buildings focused on connecting building users with nature, and allowed natural daylight to penetrate throughout the building to reduce the need for artificial lighting. They also balanced the encouragement of social interaction with the need for security and privacy. The schools tried to incorporate some flexibility in their spaces to allow users to control their own spaces, and their ability to come and go from those spaces as they chose. Likewise, the medical facilities focused on the ease of circulation for building users, both professionals and patients.

CHAPTER 6. SITE CONTEXT- HILO

The focus area of this project is in Hilo, a small town with a long history. According to Doak, Hilo is both the second largest and oldest city in the state of Hawaii³⁷². Hilo is also the wettest city in the United States, with an average rainfall of 130 inches near the shore, and up to 200 inches on the mountain slopes³⁷³.

One of the reasons that Hilo was chosen as the site focus for this project is for its rates of child maltreatment cases when compared to the rest of the state. Hilo is the largest city in the County of Hawaii, which encompasses the entirety of the Island of Hawai'i. The County of Hawaii has the second highest amount of reported and confirmed cases of child maltreatment in the state³⁷⁴. When the number of confirmed cases per county is compared with the population of each county as stated by the 2010 Census; the County of Hawaii had the highest incident rate. As stated in chapter two, the County of Hawaii also has a higher rate of residents that know a victim of child abuse than in the state³⁷⁵. Within the County of Hawaii, South Hilo and Puna are the two districts with the highest reported and confirmed cases of child maltreatment³⁷⁶.

Boundaries

For the purposes of this project the boundaries of Hilo will be defined by the boundaries set by the United States Census Bureau as Hilo (CDP) or census-designated-place. These include the northern-most boundary of the "Singing Bridge" over the Wailuku River to the north of Downtown Hilo, and the Waiakea Forest Reserve and Mauna Loa Macadamia Nut Farm to the south. The west-most boundary is just west of

³⁷² Robin S. Doak, *Hawaii, the Aloha State*, (Milwaukee: World Almanac Library, 2003), 17.

³⁷³ NOAA, "Hilo, Hawaii," National Weather Service Forecast Office, October 12, 2005, http://www.prh.noaa.gov/hnl/climate/phto_clim.php (accessed April 12, 2014).

³⁷⁴ State of Hawaii Department of Human Services Management Office, *Child Abuse and Neglect in Hawaii: 2012*, (Honolulu: Department of Human Services Management Office, 2012). <http://humanservices.hawaii.gov/wp-content/uploads/2013/06/Child-Abuse-and-Neglect-Report-for-20121.pdf> (accessed April 12, 2014).

³⁷⁵ Hawai'i Children's Trust Fund, *Perceptions of Child Abuse*.

³⁷⁶ Department of Human Services Management Office, *Child Abuse and Neglect in Hawaii: 2012*.

Unahele St. off of Daniel K. Inouye Highway (also called Saddle Road and Route 200), while the Pacific Ocean acts as the boundary to the east, following the shoreline.

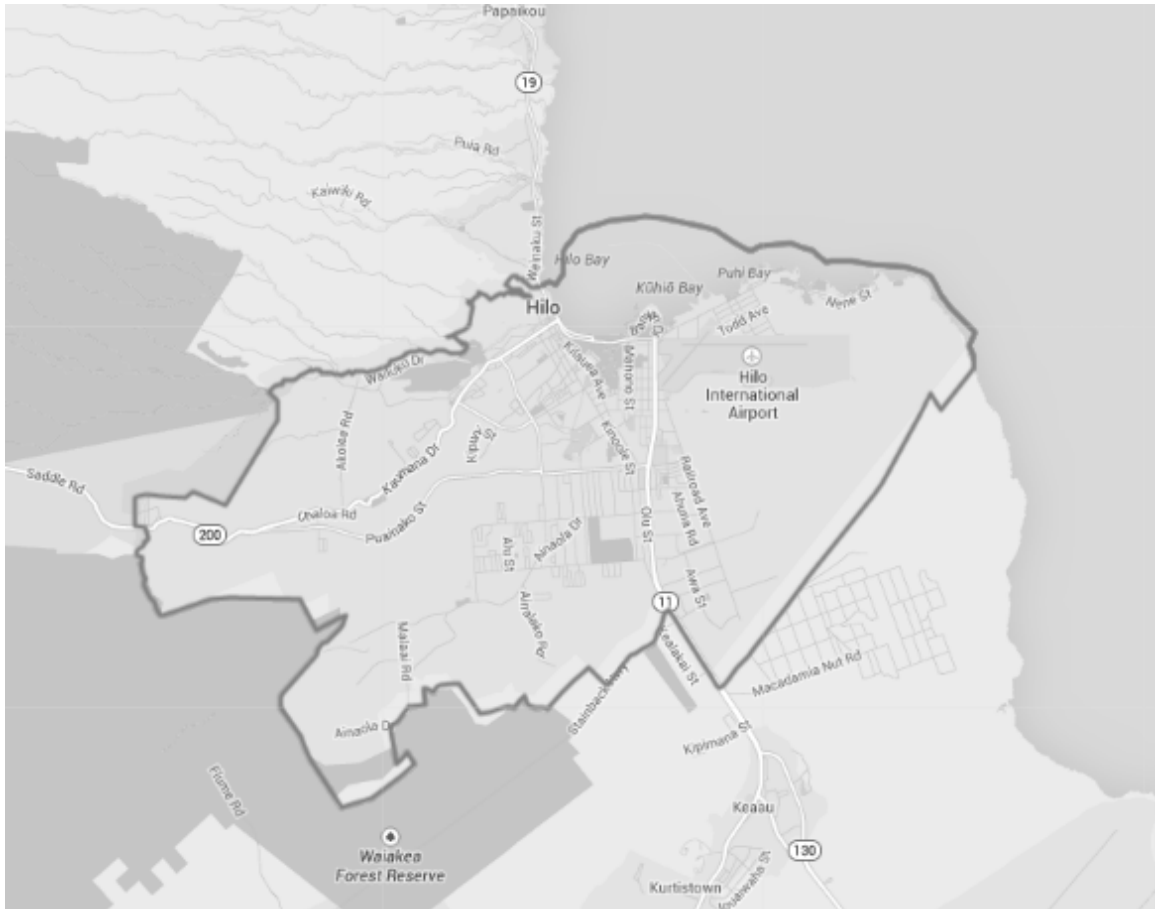


Figure 6.1: Boundary Map of Hilo (CDP)

Source: Stringer Stiles. *Boundary Map and Geodata for the CDP of Hilo in Hawaii, U.S.A.* Map. 2014. Stringer Stiles, Boundary Map and Geodata for the CDP of Hilo in Hawaii U.S.A., MapTechnica.com, <http://www.maptechnica.com/us-city-boundary-map/city/Hilo/state/HI/cityid/1514650> (accessed April 12, 2014).

History

Hilo has been an important location in Hawai‘i’s history physically, economically, and mythologically. The goddess Pele is said to have shaped the area of Hilo by sending lava down Mauna Loa, the largest mountain in the world³⁷⁷. Hina, the woman who bore the demigod Maui who is the mythological founder of the Hawaiian islands, lived in a

³⁷⁷ County of Hawai‘i Planning Department, *County of Hawai‘i General Plan*, (Hilo, HI: County of Hawai‘i Planning Department, February 2005), <http://www.cohplanningdept.com/wp-content/uploads/2013/01/GP2005AmendthruOrd12-089.pdf> (accessed April 12, 2014), 6-5.

cave behind Rainbow Falls³⁷⁸. Rainbow Falls is a feature along the Wailuku River, the northern boundary of Hilo (CDP).

The city of Hilo, originally a farming and fishing area, was also of particular import to King Kamehameha I³⁷⁹. Māmalahoa, the Royal Order of Kamehameha I, state that Hilo was named by King Kamehameha after a special braid he used to secure his canoe³⁸⁰. Hilo is the location where Kamehameha first proved his right to rule all of the islands by lifting the Naha Stone, which is now on display in front of the Hilo Public Library³⁸¹. Hilo is also where he housed *Peleleu*, his war fleet that was instrumental in his conquest, and where he established his first seat of government³⁸². It was in this seat of government that he established his greatest law, *Kānāwai Māmalahoe*, or the Law of the Splintered Paddle³⁸³.

At the time of King Kamehameha's rule, the island of Mokuola (Island of Life) in Hilo Bay was a *Pu'uhonua* or place of refuge. This included a heiau complex that extended along the shoreline³⁸⁴.

The first written reports of Hilo after Western contact was by Captain James Cook in 1778, who noted that he was unable to land in Hilo as a result of heavy seas³⁸⁵. Hilo Bay was called Byron's Bay for a number of years, named after Lord Byron, the first to chart it³⁸⁶. Following the first Western explorers, fur traders and seaman began to use that area as a stop off during the winter and for provisions. By 1791 Hilo had become an important port as a result of the sandalwood trade³⁸⁷.

At the time when the first missionaries arrived in Hilo, led by William Ellis in 1822, Hilo was a marketplace for people from the southern part of the island, Ka'u, all

³⁷⁸ County of Hawai'i Planning Department, *County of Hawai'i General Plan*, 6-5.

³⁷⁹ Hawaii Tourism Authority, "Hilo on Hawaii Island," Hawai'i the Big Island, 2014, <http://www.gohawaii.com/big-island/regions-neighborhoods/hilo> (accessed April 12, 2014).

³⁸⁰ Māmalahoa, "Hilo & Mokuola," Kamehameha Festival, 2011, <http://www.kamehamehafestival.org/about/33/hilo-moku-ola> (accessed April 12, 2014).

³⁸¹ Ibid.

³⁸² Ibid.

³⁸³ Ibid.

³⁸⁴ Ibid.

³⁸⁵ County of Hawai'i Planning Department, *County of Hawai'i General Plan*, 6-5.

³⁸⁶ Ibid.

³⁸⁷ Ibid.

the way up to Hamakua on the east coast north of Hilo³⁸⁸. By 1837, two thirds of the population around the area had abandoned their villages and moved to Hilo. Many converted to Christianity under the missionaries³⁸⁹.

After the sandalwood industry died out, Hilo remained a location of commerce to a number of industries including the whaling and sugar industries³⁹⁰. The sugar industry made Hilo a thriving economic center after the Reciprocity Treaty of 1875 with the United States³⁹¹. This was the start of the diverse mix of ethnicities that make up the population to this day, as labor for the sugar plantations was imported from Asia and Europe³⁹².

In both 1946 and 1960 the town was almost decimated by tsunamis³⁹³. While Downtown Hilo was rebuilt, much of it was left empty, serving in the present day as sports fields. However, it is still possible to see the curb cuts where driveways once sat. Today Hilo is a vibrant town for tourists and residents alike, acting as a gateway to popular destinations all around the island.

Demographics

The population of Hilo was 43,263 residents in 2010 according to the 2010 Census, with a median age of 40.9 years³⁹⁴. Hilo is a diverse mix of different ethnicities with the highest percentage of a single ethnicity being Asian at 34.3% with 22.1% of the population being Japanese. 17.6% of the population is white, and only 10.5% of the population is Native Hawaiian. 32.4% of the population is a mix of two or more ethnicities, with the highest percentage being a mix of white and Asian at 6% of the population³⁹⁵.

³⁸⁸ County of Hawai'i Planning Department, *County of Hawai'i General Plan*, 6-5.

³⁸⁹ Ibid.

³⁹⁰ Ibid, 6-6.

³⁹¹ Ibid.

³⁹² Ibid, 6-5.

³⁹³ Hawaii Tourism Authority, "Hilo on Hawaii Island."

³⁹⁴ U.S. Department of Commerce, United States Census Bureau, "Hilo CDP, Hawaii," American Fact Finder, http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none (accessed April 5, 2014).

³⁹⁵ Ibid.

According to the 2008-2012 American Community Survey 5-year Estimates, 16.9% of individuals live below the poverty line, higher than the National average of 14.9%³⁹⁶. The Median household income is \$51,929³⁹⁷ with the highest rate of household size being two persons³⁹⁸.

Hilo has a high rate of high school graduates with 91.1% of adults having attained their high school degree. However, this number drops to only 29.8% of the population attaining a bachelor's degree or higher³⁹⁹.

Existing Programs

There are many organizations and programs in Hawai'i that have services to help children and family deal with or prevent child maltreatment. The ones described in this project are examples of organizations that focus on this specifically, and have offices located in Hilo.

Epic 'Ohana

Epic 'Ohana is a non-profit organization focused on family conferencing, facilitation, training, and program development. Families and foster children are referred to Epic by their Child Welfare Service (CWS) social worker. The organization's mission is to "strengthen 'ohana and enhance welfare of children and youth through transformative processes that are respectful, collaborative, and solution-oriented."⁴⁰⁰

Epic provides a number of services to families and children including 'Ohana Conferencing, family group decision making for at risk children and youth; 'Ohana Finding which identifies, locates, and engages family members of children and youth who are in foster care; *E Makua Ana* Youth Circle, which helps children in foster care to

³⁹⁶ United States Census Bureau, "Hilo CDP, Hawaii."

³⁹⁷ Ibid.

³⁹⁸ Ibid.

³⁹⁹ Ibid.

⁴⁰⁰ Epic 'Ohana, "About Us," Epic 'Ohana, Inc., <http://www.epicohana.org/about.aspx> (accessed April 12, 2014).

plan their future; and Hawai'i Youth Opportunities Initiative, which helps to create successful transitions for foster children into adulthood⁴⁰¹.

Epic 'Ohana has offices in Honolulu on Oahu; and Hilo and Kona on the Big Island. Their Hilo office is located near the State, County, and Courthouse buildings in the old Hilo Lagoon Center.

Neighborhood Place of Puna

Neighborhood Place of Puna (NPP) is a program developed by Blue Print for Change, a community non-profit organization, in 2002. A collaboration of community groups submitted an application to open the program in Puna, the district that borders Hilo to the south. The NPP was started in response to the large amount of child maltreatment in Puna, and the "disproportionately high" rate of Hawaiian children that were removed from their homes⁴⁰². In August of that year, the Island of Hawaii YMCA opened the first Neighborhood Place of Puna in Pahoa, and a year later the program received additional funding from the Hawaii Children's Trust fund⁴⁰³.

The NPP became a non-profit organization in 2005, and in 2010 received a multi-year grant for Title IVBII funds in order to hire staff to serve isolated families living in Upper Puna⁴⁰⁴. Three years later, in 2013, NPP opened an office in Hilo in response to a rise in child maltreatment in the Hilo district⁴⁰⁵.

Neighborhood Place of Puna is a free and voluntary home visiting/ family strengthening program that provides in-home services to families with children ranging in age from children under a year old up to seventeen⁴⁰⁶. The goal of the program is, "to

⁴⁰¹ Epic 'Ohana, "Services," Epic 'Ohana, Inc., <http://www.epicohana.org/services.aspx> (accessed April 12, 2014).

⁴⁰² Neighborhood Place of Puna, "Our History," Neighborhood Place of Puna, http://neighborhoodplaceofpuna.org/?page_id=96 (accessed April, 12, 2014).

⁴⁰³ Ibid.

⁴⁰⁴ Ibid.

⁴⁰⁵ Ibid.

⁴⁰⁶ Neighborhood Place of Puna, "About Us," Neighborhood Place of Puna, http://neighborhoodplaceofpuna.org/?page_id=12 (accessed April, 12, 2014).

ensure that families have access to the resources and skills they need to raise safe and healthy children, free of abuse and neglect.⁴⁰⁷”

NPP provides a variety of services to the community. Their main services include: the home visiting program mentioned previously, where they visit families in their home weekly over several months; Kamalama, a parenting education program; School Supply Drive where they distribute free school supplies to East Hawaii’s at risk children; Sports Rescue where they distribute free gently used or new sports equipment to children who would not be able to play sports otherwise; Outreach where they table and provide information booths at events; and the Community Roundtable which is a forum for businesses, non-profit organizations, social services, and citizens to share news, resources, and collaborate on projects⁴⁰⁸. Other programs listed on their website include Puna Support, Big Island Babes, YES, and Trunk or Treat.

NPP’s Hilo office is located in the Pu’ueo neighborhood, a mixed income neighborhood. The office is actually located just outside of the project area’s boundary on the opposite side of the Wailuku River from Downtown Hilo.

Hawai’i Children’s Justice Centers

The Hawai’i Children’s Justice Centers are programs of the Hawai’i State Judiciary. The program is part of the National Children’s Alliance, which has over 700 Children’s Advocacy Centers in the country⁴⁰⁹. The legislature created the program in 1986 to protect the rights of the victims and alleged perpetrators, and to ensure a fair process when handling reports of child sexual abuse⁴¹⁰. The program was started to allow children as witnesses in the courthouse, as prior to the program’s creation the justice system was geared towards the needs of adults, and not towards the children

⁴⁰⁷ Neighborhood Place of Puna, “About Us.”

⁴⁰⁸ Neighborhood Place of Puna. “Programs and Services.” Neighborhood Place of Puna. http://neighborhoodplaceofpuna.org/?page_id=29 (accessed April, 12, 2014).

⁴⁰⁹ Hawai’i State Judiciary, “Hawai’i Children’s Justice Centers,” Hawaii State Judiciary, http://www.courts.state.hi.us/services/hawaii_childrens_justice_centers/hawaii_childrens_justice_center_s.html (accessed April 12, 2014).

⁴¹⁰ Hawai’i State Judiciary, “About the Children’s Justice Centers,” Hawaii State Judiciary, http://www.courts.state.hi.us/services/hawaii_childrens_justice_centers/about_the_justice_centers.html (accessed April 12, 2014).

who are victims of crime⁴¹¹. Originally the program focused specifically on child sexual abuse with specially trained professionals to conduct forensic interviews, videotaping the interviews rather than needing a written statement from the child. Since its inception, the program has expanded to include felony abuse and children as witnesses⁴¹².

The Children's Justice Centers bring teams of multidisciplinary professionals together in order to coordinate their activities when investigating reports of child abuse and neglect, though they still focus particularly on child sexual abuse⁴¹³. These professionals come from: the Department of Human Services Child Welfare Services, the county police department, offices of the prosecuting attorney, victim witness assistance programs, crisis counseling and medical services, community volunteers, and other organizations⁴¹⁴.

Particularly relevant to this project is the program's focus on the environment they create for the children they interview. The program specifically states that they provide a "homelike and child-friendly setting" and that their interview rooms, "provide a warm environment where children can feel as comfortable and safe as possible" when they are interviewed about reported child maltreatment or if they are witnesses to crimes⁴¹⁵. The Centers try to provide a "comfortable atmosphere" where the children, families, and specially-trained professionals interact⁴¹⁶.

The Center's website gives examples of how they customize the rooms they use depending on the age of the child they are interviewing. The three age ranges they cater to are preschool, elementary, and teenage.

Hawai'i Children's Justice Center have five offices: O'ahu, East Hawai'i, West Hawai'i, Maui, and Kaua'i. The East Hawai'i office is located in an old home at the center

⁴¹¹ Hawaii State Judiciary, "About the Children's Justice Centers."

⁴¹² Ibid.

⁴¹³ Hawaii State Judiciary, "Hawai'i Children's Justice Centers."

⁴¹⁴ Hawaii State Judiciary, "About the Children's Justice Centers."

⁴¹⁵ Hawai'i State Judiciary, "A Closer Look at the Children's Justice Centers," Hawaii State Judiciary, http://www.courts.state.hi.us/services/hawaii_childrens_justice_centers/a_closer_look.html (accessed April 12, 2014).

⁴¹⁶ Ibid.

of Hilo in a primarily residential area off of Kino'ole Street. The Hilo office was opened in 1990 and serves 13% of the abused children in the state⁴¹⁷.

Friends of the Children's Justice Center

The Friends of the Children's Justice Center is a non-profit organization founded by the local Rotary Clubs of the communities served by each Center's office⁴¹⁸. Their purpose is to provide resources and support for the Children's Justice Centers, professionals that work with the victims, and the families served by the program, for no charge⁴¹⁹. Similarly to Epic 'Ohana, a worker with the state, qualified private agencies, or a CWS social worker for children must refer the child or family to the program⁴²⁰.

The program serves victims between the ages of birth to 18 years who have a documented case of abuse, with the goal of helping them gain self-esteem and to develop positive self-worth⁴²¹. In order to accomplish this, the program offers services such as: funds for basic essentials like clothing and diapers; special needs such as air or ground transportation or providing school supplies; and enhancement support such as sports, music lessons, and tutoring⁴²².

The East Hawaii office of the Friends of the Children's Justice Center is located in the same building as the East Hawaii Children's Justice Center. The program specifically looks to assist children who are victims of child maltreatment and are in temporary or

⁴¹⁷ Hawai'i State Judiciary, "East Hawai'i Children's Justice Center," Hawai'i State Judiciary, http://www.courts.state.hi.us/services/hawaii_childrens_justice_centers/east_hawaii.html (accessed April 12, 2014).

⁴¹⁸ Hawai'i State Judiciary, "Hawaii Children's Justice Centers."

⁴¹⁹ Hawai'i State Judiciary, "Hawaii Children's Justice Centers."

⁴²⁰ County of Hawai'i, Network of Care. "Friends of the Children's Justice Center: East Hawai'i." Hawai'i County. http://hawaiaicounty.hi.networkofcare.org/veterans/services/agency.aspx?pid=FriendsofTheChildrensJusticeCenterEastHawaii_1121_17_0 (accessed April 12, 2014).

⁴²¹ Family Programs Hawai'i, "Friends of the Children's Justice Center of East Hawai'i," Family Programs Hawai'i, <http://familyprogramshawaii.org/resources/friends-of-the-childrens-justice-center-of-east-hawaii-5/> (accessed April 12, 2014).

⁴²² Family Programs Hawaii, "Friends of the Children's Justice Center of East Hawai'i."

permanent foster care living in North Hilo, South Hilo, Hamakua, Puna, and parts of Ka'u⁴²³

Interviews with Professionals in Hilo

Interviews with professionals that work in fields dealing with children and families at risk for child maltreatment was the best way to understand what kinds of facilities are needed in the community. Although few, the interviews did give an idea of what Hilo's architectural needs are in terms of child maltreatment. The main ideas were the condensing of services into a single location, the importance of waiting areas, and discovering what spaces are needed for this kind of program.

When asked what Hilo was lacking in terms of facilities and programs in relation to child maltreatment, it was stated that services were too spread out. According to the interviews, many families who need services live relatively far, so do not come into town often. When they do, it would be better if their family services were condensed into one location, so they are not forced to drive around town.

Condensing services into one location also has the added benefit of increased privacy for the families. If there is one location that houses medical, psychological, and other services as well as psychological, and child welfare services; then it is not immediately obvious why the family is visiting a particular building. Families can avoid the stigma of needing particular kinds of help.

A related and extremely important design point that was brought up in all of the professional interviews was the importance of waiting areas. Waiting areas need to be able to accommodate the whole family, and be designed with children in mind. Waiting rooms can be chaotic, and a threat to privacy if there are multiple families waiting in one area. If the waiting area is the same as the reception area, then anyone who walks

⁴²³ County of Hawai'i, Network of Care. "Friends of the Children's Justice Center: East Hawai'i." Hawai'i County. http://hawaiicounty.hi.networkofcare.org/veterans/services/agency.aspx?pid=FriendsofTheChildrensJusticeCenterEastHawaii_1121_17_0 (accessed April 12, 2014).

in off the street to deliver a package or to use the restroom can see who is in the facility, and guess why they are there.

As a solution, two of the professionals suggested that it would be better to have separate waiting areas for individual families. This would cut down on the amount of stress the families face, helping to keep them from having a negative mindset before any appointments have started.

All three professionals also had ideas about what program elements would be needed for any facilities similar to this one. The facility would need both private and group meeting rooms to be used by families, children, and professionals. There would also need to be some type of conference room for training purposes and staff meetings.

CHAPTER 7. DESIGN BACKGROUND

The Design portion of the project focuses on taking the lessons learned in previous chapters, and applying them into a practical project. The project is the design of new facilities for one of the existing programs in Hilo that help victims of child abuse. In this case the “client” of the project is the East Hawai‘i Children’s Justice Center.

The East Hawai‘i Children’s Justice Center

The East Hawai‘i Children’s Justice Center is a program of the Hawai‘i State Judiciary that focuses on victims of child sexual assault and children who have witnessed a crime and need to testify in court⁴²⁴. They are a part of a larger network of children’s advocacy programs across the country. Before the CJC was established, a victim of child sexual assault would be routed to various professionals; and forced to repeat their story multiple times, to multiple people, in multiple locations.

The CJC provides a single location for the child to go, instead bringing the various professionals to see him or her⁴²⁵. These professionals include Child Welfare Services, the police, attorneys, psychologists, and medical professionals⁴²⁶. The child is interviewed by a single interviewer, and video recorded to cut down the amount of times they need to be interviewed, the recording acting as their testimony in court⁴²⁷.

The East Hawaii Children’s Justice Center serves the east half of the Big Island, which amounts to 13% of abused children in the state⁴²⁸. The non-profit organization, Friends of the Children’s Justice Center, shares their existing building. However, the CJC has outgrown its current facilities and is looking into building a new center to better serve the children and families that go to them for help.

⁴²⁴ Hawaii State Judiciary. “About the Children’s Justice Centers”.

⁴²⁵ Ibid.

⁴²⁶ Ibid.

⁴²⁷ Ibid.

⁴²⁸ Hawaii State Judiciary. “East Hawai‘i Children’s Justice Center”.

The Children's Justice Center took part in three work sessions during the design process to help create the new facility's building program, and to give feedback as the design took shape. The work sessions also served as a time for the center to voice opinions on what they wanted to see in new facilities, and what was lacking in their current building.

Existing Facilities



Figure 7.1: Existing Facility on Kinoole Street

Left: Location map of Existing Facility

Right: Entrance of East Hawai'i Children's Justice Center facing parking area.

Source (Left): Google Earth

The existing Children's Justice Center building is located in Hilo at 1290 Kinoole Street, a few blocks from the University of Hawaii at Hilo campus. The building is inconspicuous, the landscaping allowing it to blend in to its surroundings, lending families that go there a sense of anonymity. However, this anonymity also makes it hard to find when approaching the site. The building was originally a family residence that was lightly renovated to house the center.

There are quite a few problems that have come about because of the building's original use. The building does not meet ADA requirements. The main floor of the building is raised from ground level, and there are no ramps or elevators to allow people entrance. When one of their clients has a disability, the CJC arranges to use an alternative site for their meetings.

The entrance opens up to an open space that was once the living room of the house. This open area acts as the lobby, reception, copy room, and waiting area. Unfortunately this design results in a lack of privacy for the families that come to the center. Any delivery person, or someone stopping in to visit the Friends of the CJC, can see exactly who is getting services from the center.



Figure 7.2: The waiting and reception areas of the existing facilities are in one large open room, allowing anyone who stops by to see who is visiting the center.

The reception area opens into a fully functional kitchen, used to serve visitors, and a small dining table. This table is used to speak with family members of the children being interviewed. Many times the parent needs to bring other children with them to the center. The children stay in the waiting room, while their parents are in a meeting in the kitchen. The parents then need to keep one ear trained on their children, and occasionally interrupt their meeting to crane their heads into the next room to make sure everything is alright.

The next problem to arise is the layout of the ground floor. The ground floor houses their meeting/ training room, two interview rooms, the Friend's clothes closet, and a seating area. The CJC caters to three age groups of children: pre-school, elementary school, and teenage. Ideally, children's advocacy centers try to have three rooms, one to cater to each age level with age appropriate interior decorations and furniture. The East Hawaii CJC has only two rooms, one for young children, and one for older children. A new facility would need to include the third room that they are missing.



Figure 7.3: Existing Ground Floor

Left: The seating area on the ground floor is also the circulation between the interview rooms and meeting room.

Right: The interview room for younger children.

One of the biggest problems is again an issue with lack of privacy. One of the most public spaces: the meeting/ training room, and the most private spaces: the interview rooms, are right next to each other. The only space for children to meet with their psychologists and other professionals is a seating area in the circulation between the interview rooms and the training room. Another privacy issue is that the Friend's clothes closet is also located next to the interview rooms. This means that while a child is receiving services, the Friends cannot access their clothes closet without interrupting.

In all, the existing facilities suffer from four main problems. These problems are: 1) it is not ADA compliant, 2) there are only two interview rooms, 3) there is inadequate space, and most importantly 4) there is a lack of privacy for the families that receive services at the facility.

Despite these problems there are several good points to the existing building that should be incorporated into new facilities. The building uses natural ventilation in the less private areas, with large operable windows allowing for daylight and cool breezes to pass through the space. The natural daylight and breezes combine with comfortable seating for both adults and children creating a welcoming feel.

Building Program

There are three programs or building occupants that will be permanently housed in the CJC facilities. These programs are the Children's Justice Center, the YWCA Crisis Center, and the Friends of the Children's Justice Center. The Children's Justice Center and the Friends of the Children's Justice Center are described in chapter six.

The YWCA Crisis Center, is a program of the YWCA of Hawai'i Island that provides sexual assault services for victims of sexual assault and their families. These services are: Sexual Assault Support Services (SASS), Sexual Assault Response and Advocacy Services (SARAH), and Empowering Alternatives program (EAp). These services provide free confidential counseling, emotional and moral support, support during medical examinations, therapeutic services, assistance with legal counseling and whether to file a police report, and community education and prevention programs⁴²⁹.

The three building occupants have unique needs that have to be integrated into a single facility. There needs to be shared circulation between the three programs, yet separation between them. A major concern that needs to be addressed is circulation control, both of the clients, and between programs.

There are also visiting professionals who will need space to work, but do not need permanent offices. Additionally, the facility will need to contain a large training room that can be rented or borrowed out to the public and other organizations.

The original building program was created during three work sessions with the Children's Justice Center. These work sessions were vital in understanding the functional needs and concerns of the Children's Justice Centers and the other building occupants. What follows is the initial program chart that was created during those work sessions. The chart includes the areas of each space, how many people will be using the spaces, and the amount and length of time the spaces are used.

⁴²⁹ YWCA Admin, "Sexual Assault Support Services," *YWCA of Hawai'i Island*, June 12, 2013, <http://www.ywcahawaiiisland.org/what-we-do/sexual-assault>.

Program Analysis

Once the building program is listed, it is important to analyze the program to understand how the spaces relate to each other. This is imperative to figuring out what spaces needed to be adjacent to each other, and how the building needs to be laid out.

Public v. Private

Public

Conference Room
Entries

Private

Office Spaces
Staff Restrooms

Semi-Public

YWCA Waiting Room
Reception
Friends Large Workroom
Public Restroom
Tranquility Room
Clothes Closet

Extremely Private

Interview Rooms
Observation Rooms
Family Rooms
Medical Room
Medical Restroom
Play Therapy Room

One of the most important studies categorized the amount of privacy needed for each space. The spaces were categorized into four different privacy levels. Public spaces are spaces that the larger community could access when they come to visit the center. Semi-public spaces are those for all visitors coming to use the center for the actual programs and also for volunteers of the Friends of the Children's Justice Center. Private spaces are the staff spaces, which visitors would generally not be accessing. Extremely Private spaces are those used for the children and their families that have come to the center for services.

Spaces that must have Natural Daylight:

Entries
Reception
Office Spaces
Shared Workrooms
Tranquility Spaces

Family Rooms
Conference Rooms
Waiting Areas
Meeting Rooms
Volunteer Workroom

One of the main driving factors of the design is to allow building users visual and physical access to nature and natural daylight. While it is ideal that all spaces have access to natural daylight, there are spaces that have a higher need for day lighting. These are spaces in which staff and visitors spend more time, including offices and meeting rooms. Access to daylight makes these spaces more pleasant and welcoming.

Spaces Used Daily:

Entries	Kitchen
Reception	Family Waiting Rooms
Office Spaces	Waiting Areas
Shared Work Room/ Meeting Room	Meeting Room (YWCA Crisis Center)
Tranquility Space	Volunteer Workroom

The spaces that are used daily, such as office spaces, need to have means of access between them for user convenience. As they are utilized the most frequently, it should be convenient for staff to move easily between these spaces throughout the day. There will need to be a measure of circulation control as some spaces need to be shared between programs, and some spaces should not be accessed by staff or visitors of another program.

Two examples of the need for circulation control are: staff from the YWCA Crisis Center should not have free access to the Children's Justice Center interview rooms, and Friends of the Children's Justice Center volunteers should not have access to the YWCA Crisis Center meeting rooms.

Program Type

Welcome: Entries, Reception, Waiting Area

Concentrate: Office Spaces

Collaborate: Family Rooms, Conference Room, Meeting Rooms

Listen: Interview Rooms, Observation Rooms

Relax: Tranquility Rooms

Serve: Restrooms, Kitchen, Storage Rooms, Clothes Closet

Heal: Medical Exam Room, Play Therapy Room

Transformable Spaces:

Family Rooms = Meeting Rooms

Small Meeting Rooms = Staff Seating

Conference Room = Multiple Large Meeting Rooms

Another important factor for the building design is to classify which spaces will be used for more than one purpose. Many of the building program elements will not often be in use. Rather than having these sit as wasted space when not in use, it is more efficient to have spaces that can be transformed to meet the needs of the center as they arise. For example: all four of the family rooms will not always be in use at the same time. When they are empty they can act as smaller meeting rooms in which professionals and staff can meet when they do not need the larger meeting rooms in the public conference area.

Program Adjacencies

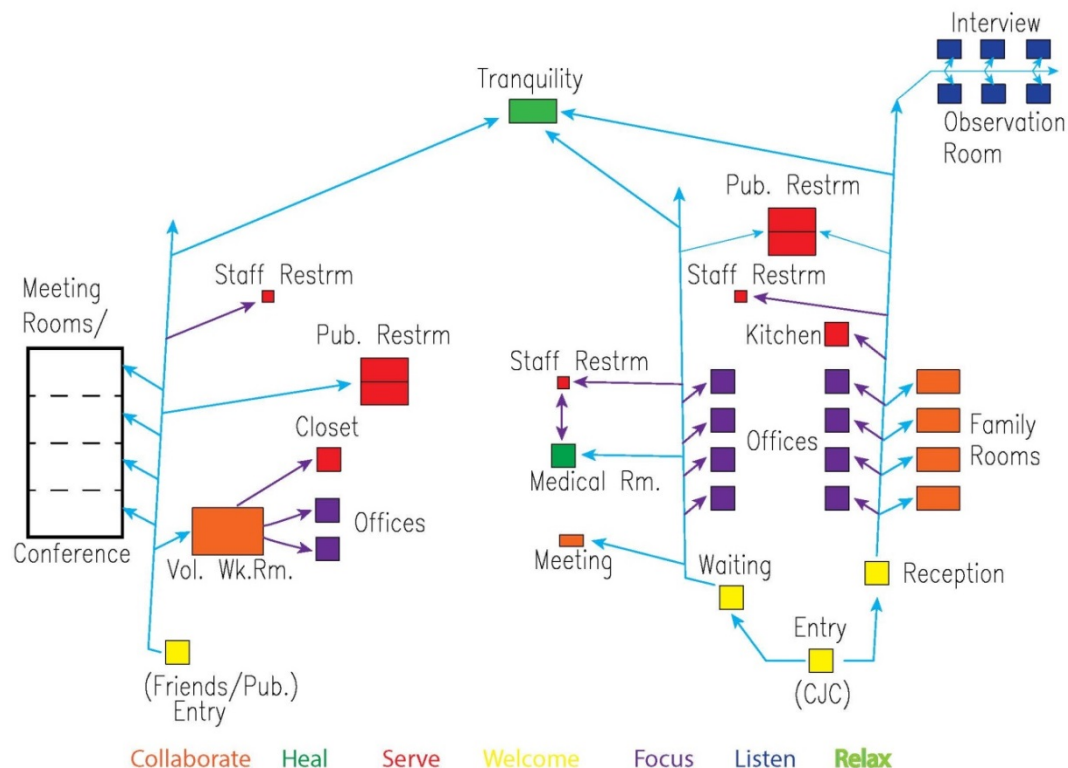


Figure 7.4: Program Adjacencies Diagram

After taking the program analysis into account, an adjacency diagram for the layout of spaces of the new center can be created. This diagram shows which spaces needs to be next to other spaces, and which spaces need to be placed between others. The diagram shows two separate entries, the public entry and the entry for the CJC and the YWCA. Those entries split into the four different building occupants, each with its own circulation route.

While the separate entries were later combined into a single entry courtyard the separate circulation paths for each occupant remained in the final design.

Precedents

The building precedents are buildings and facilities that were used for design inspiration. The precedents were chosen for two reasons: either the precedent facility has a similar building program, or the facility has a layout that serves as inspiration for the building design.

Dallas Children's Advocacy Center

Unfortunately, while there are many children advocacy centers across the country, many specifically designed by architects, there is not a lot of available documentation on them. It was especially difficult to find documentation on children advocacy centers that had buildings designed by architects that also had either published client reviews, or architecture awards. One building that met these requirements is the Dallas Children's Advocacy Center by CamargoCopeland, built in 2013⁴³⁰.

⁴³⁰ Jordan Foster Construction, "Dallas Children's Advocacy Center," <http://www.jordanfosterconstruction.com/project/dallas-childrens-advocacy-center>



Figure 7.5 The Dallas Children's Advocacy Center, lit at night.

Source: Dallas Moms Blog, "Dallas Children's Advocacy Center", 2014 <<http://citymomsblog.com/dallas/dallas-childrens-advocacy-center-making-a-difference-in-the-lives-of-abused-children/>>.

The Dallas Children's Advocacy Center, also called the Rees-Jones Center for Child Protection, is a much larger facility than Hilo would need. However, there are parts to the building's design that are relevant to this project.



Figure 7.6: Outdoor staff seating.

Source: Lum, Terri Lynn, "Outdoor Area."

The Center includes an outdoor seating area in which staff can relax. This is a type of space that directly influenced the design of the proposed facility for Hilo. It allows staff to get out of the office, and gives them a space to relax and let go of stress.



Figure 7.7: Waiting room.

Source: Lum, Terri Lyn, "Waiting Room." Photograph.

The waiting room is designed with children in mind, at their scale and with tables for them to work on activities while they wait. One critique is that the room does feel a bit plain and institutional, as the walls are painted stark white. Something as small as a change in wall color would help to make the space feel less sterile. This is a consideration that needs to be incorporated into the proposed Hilo design.

In general, the Dallas Children's Advocacy Center has a more institutional feel than what is wanted for Hilo. However, their focus on designing at a child's scale, and providing outdoor relaxation spaces are ideas that will be brought forward into the proposed project.

Site



Figure 7.8: Site Surroundings.
Source: Created from Google Earth Image.

During the work session a theoretical site was chosen for the project. The site is one that the Children’s Justice Center had looked into as a potential site for their new facility in the future. Some of the pros for using that particular site is that it is located two blocks mauka from the Hilo Medical Center. This means that if a child is brought to the CJC facility, and needs more medical care than can be provided on site, then the child can be taken to the hospital quickly. Another pro to the site is that it is not located in a special flood zone. According to the National Flood Insurance Program the chosen site is designated as being in Zone X, or areas that are not in the 0.2% annual chance flood plain⁴³¹.

The site is a corner lot surrounded by an old well-to-do neighborhood on two sides, the First United Protestant Church on the other, conservation land to the north, and an empty lot across the street. The biggest constraint is the residential neighbors, as there could be the potential for NIMBY sentiments. The main traffic would be coming up Waianuenue Avenue, and would need to avoid turning onto the residential street. There

⁴³¹ State of Hawaii, *Flood Hazard Assessment Report*, June 2013, <http://gis.hawaiiinfip.org/FHAT/report/FHAT_Report.pdf>.

will be a need for the landscaping to form a barrier between the residential street and the center.

Not in My Back Yard (NIMBY) is potentially one of the greatest challenges for this project. A simple site visit to analyze the existing conditions of the site led to a listing on the neighborhood watch list, as well as the neighborhood watch list of a neighborhood on the other side of town.

Site Analysis

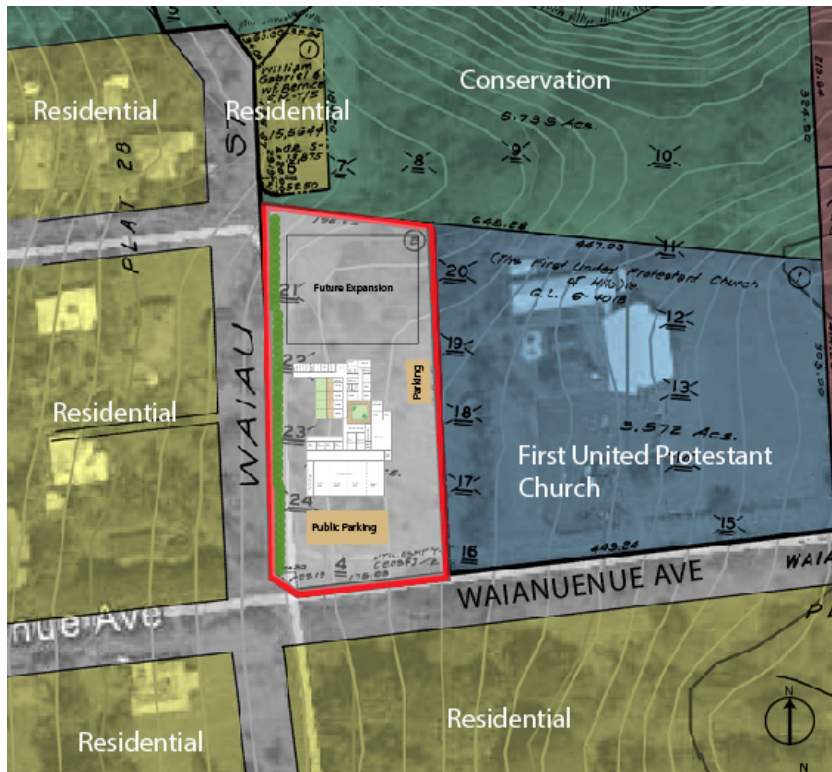


Figure 7.9 Proposed site with surrounding uses and early proposed building plan.

Main Traffic Flow/ Entrance



Traffic to and from the site will primarily be along Waianuenue Avenue. Hilo town is located east of the site, and is the direction from which most visitors will be arriving. The entry to the site will need to be located off of Waianuenue Avenue for this reason, and to keep traffic off of Waiau St. which is part of the residential neighborhood to the west of the site.

Figure 7.10: Main traffic to the site from town will be from the makai direction.

Level of Privacy

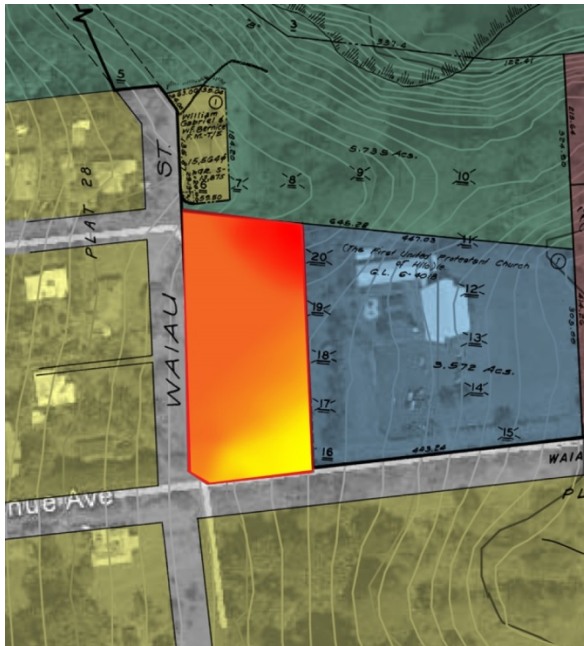


Figure 7.11: The level of privacy is indicated by intensity of color, with the red being the most private area and yellow the most public.

The most private parts of the site are to the north end of the property. The land on the northern border is conservation land, so there is no concern that something may someday be developed there. The north east corner of the site is the most private part of the site as it is furthest away from the streets.

Site Comparison: Existing and Proposed Sites



Figure 7.12 Comparison of the proposed site (left) and the site of the existing facilities (right).
Source: Created from Google Earth base image.

The proposed site is approximately four times larger than the original site, leaving room for future expansion and green outdoor space. While both sites are in areas with a mix of residential and commercial zoning, in general the lot sizes around the new site are larger. The placement of buildings is therefore further apart, giving more privacy between neighbors.

CHAPTER 8. BUILDING DESIGN

The design portion of the project focuses on taking the lessons learned, and documented in previous chapters, and applying them to a theoretical building design. These lessons include the design elements that are needed to ensure the wellbeing of a building's occupants. The elements are: 1) a connection with nature, 2) use of daylight, 3) balance between encouraging social interaction and privacy, 4) security, 5) flexibility and transformability of spaces, and 6) user control of their environment. The goal of the design portion was to have a complete schematic design of a new facility for the East Hawai'i Children's Justice Center that incorporates these elements.

Goals

Overall Design Goals:

- 1) Include elements of sustainability in the design process to create a comfortable environment for families and professionals. The three main elements included will be natural day lighting, the incorporation of greenery, and access to nature.
- 2) Encourage healthy living and habits
- 3) Allow for flexibility and transformability of spaces and future growth of the program in the future
- 4) Ensure the privacy of the families and other clients
- 5) Allow for easy collaboration between the CJC and the other agencies that will be housed in the building while controlling access between program elements.

Main Goals:

There are two types of main goals in the project: the conceptual and the functional. The three main functional goals of the design are 1) the privacy of the visitors 2) to be welcoming and comfortable, and 3) the control of the users' circulation. These three goals were developed to address the main problems with the existing facility as it is today.

The main conceptual goal is to create an environment of collaboration and safety for not only the families who come to the center, but for the staff as well. As mentioned in previous chapters, there is a high rate of turn over for social workers. This design needs to give an opportunity for both staff and visitors to relieve the stresses of their situations so that there are positive outcomes for everyone involved.

Concept

There are three elements that intertwine to form the concept for the design. These describe the function, the feel, and the layout of the building. The elements are: Nature + Transformability, Grandma's House, and the Pinwheel.

Nature + Transformability

The research done in previous chapters showed that a connection to nature and natural daylight is vital for a person's wellbeing. Access to these leads to a reduction in stress, and improved productivity. Giving children a yard to play in also encourages exercise and healthy habits while they wait for their families to receive services.

Since many of the spaces in the program are only used some of the time, it is important for spaces to be able to transform to meet various needs, rather than have

multiple wasted spaces that remain vacant. The facility also needs to have the ability to grow and expand in the future as the program grows.

Grandma's House

From the very beginning, staff of the Children's Justice Center stated that they wanted their facility to feel like going to "Grandma's House," a place children could associate with safety, while not being their own house. What does this mean? What qualities make a place feel like Grandma's House? Six elements give a building the feeling of "Grandma's House" in Hilo, 1) a wraparound porch, 2) natural light, 3) a yard to play, 4) comfortable space, where comfort is given, 5) relaxing, and 6) welcoming. These six things need to exist in some form or another to meet this concept.

The Pinwheel



Figure 8.1: Logo of Pinwheel for Prevention, an organization dedicated to preventing child abuse
Source: Prevention Child Abuse America. *Pinwheel*. Pinwheels for Prevention,
<http://www.pinwheelsforprevention.org/index.php>.

The pinwheel is the symbol for childhood innocence, and the turning of challenges into opportunities. Abstractly, the CJC acts as a way for children who have been sexually assaulted to get the tools they need to put a challenging time behind them and to recover from trauma.

The building's layout is designed after a pinwheel. The center tranquility/outdoor space acts as the center from which the different programs extend out like a pinwheel. The tranquility space holds the building together, while also providing a space for staff and visitors to de-stress, and recharge their mental well-being.

The Building

While the building is raised to prevent flooding and encourage natural ventilation, the entire facility is located on one floor for ease of mobility for building users with disabilities. This includes the internal courtyards, which will be of the same level as the floor through the use of retaining walls to build up the ground. The landscaping from the parking area to the entry courtyard will be graded so that there will be no need for a ramp to enter the building.

Incorporating the idea of the pinwheel, the different services are laid out in a pinwheel around a central entry courtyard. The services include their own internal courtyard gardens, around which covered walkways act as circulation.

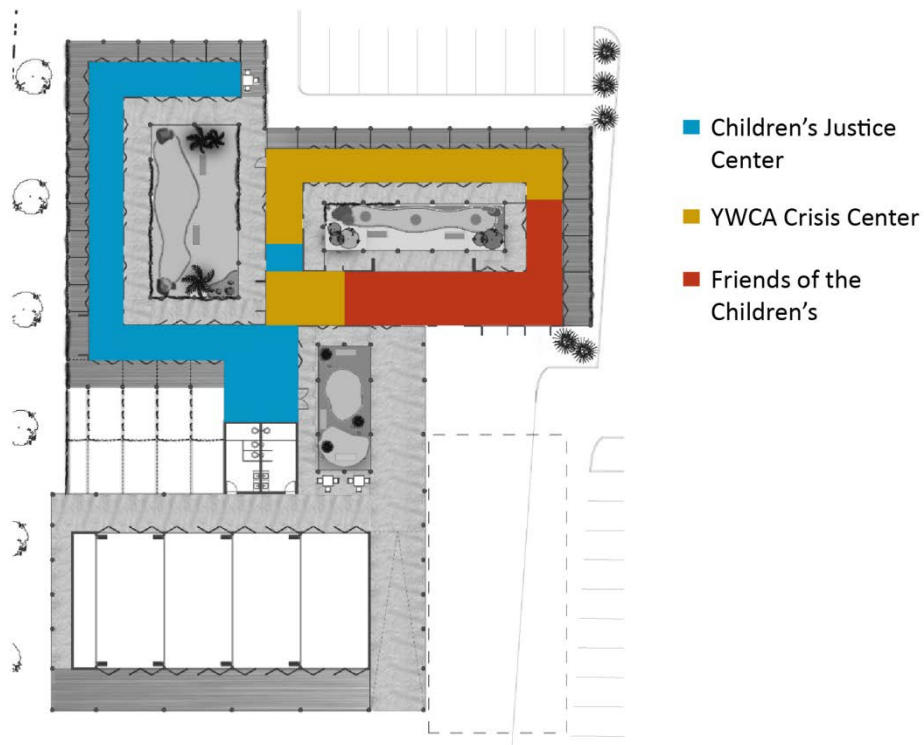


Figure 8.2: Building Occupants Diagram

Site Plan



Figure 8.3: Site Plan

Floor Plan



Figure 4.4: Building Plan

- | | |
|--|-------------------------------------|
| 1. Entry Courtyard | 7. Office |
| 2. Children's Justice Center Reception | 8. Tranquility Room |
| 3. Family Room | 9. Kitchen |
| 4. Work/ Copy/ Child Watch Room | 10. YWCA Crisis Center Waiting Room |
| 5. Observation Room | 11. Restroom |
| 6. Interview Room | 12. Medical Room |

- | | |
|---|-------------------------------|
| 13. Small Meeting Room | 18. Furniture Storage |
| 14. Play Therapy Room | 19. Visitor Parking |
| 15. Clothes Closet | 20. Staff Parking |
| 16. Friends of the Children's Justice
Center Work Room | 21. Possible Future Extension |
| 17. Conference Room/ Large
Meeting Rooms | |

Diagrammatic Section

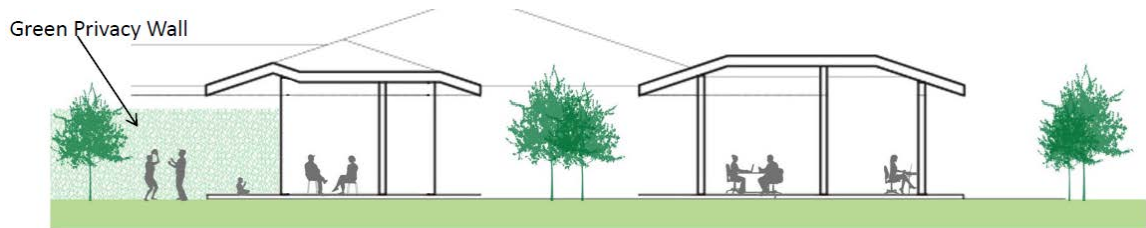


Figure 8.5: Diagrammatic Section through one of the courtyards showing how spaces may be used. (Not to Scale)

Cutting a section of the building through one of the courtyards shows how spaces can be used. Figure 8.5 is a diagrammatic section that shows how spaces are inhabited around the courtyards. The main circulation is the path around the courtyard, and lanais on the exterior of the building giving private outdoor space for different building users.

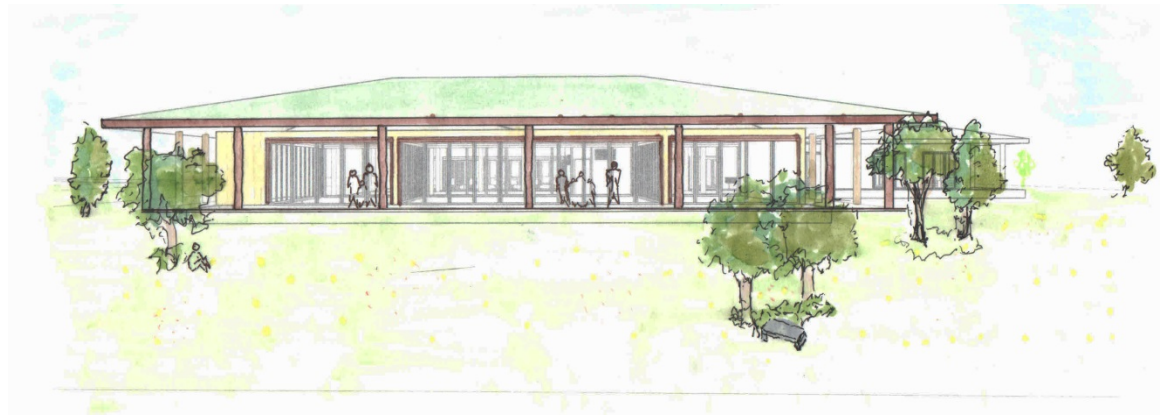


Figure 8.6: View of the building when standing in the front park.

Building Users

The design of the building needs to be based on the desires of the people who will use it. The building needs to meet both the functional needs, and promote the wellness of the buildings users. One way to discern the needs of various user groups is to give the groups life by creating characters that fit into one of the user categories. The needs of each character represent the needs of their user group. Therefore, tracking the activities of the characters reveal how spaces should be laid out in relation to each other.

The Characters:

Family Visiting the Children's Justice Center

The family has come to the center so the eldest daughter, who was abused, can be interviewed by the Children's Justice Center. While the daughter is being interviewed, the mother will be in a meeting with other staff. The younger children are watched by staff in the family garden.

The family is made up of Jasmine, a young single mother of four who could not find a baby-sitter for her younger children on the day of the meeting; Corrine, an 11-year-old who has come to the center to be interviewed, and her younger siblings Danny, Max, and Anna who span the ages of 11 months to 5-years-old.

Friends of the Children's Justice Center Volunteers

The Friends of the Children's Justice Center Volunteers have come to help organize clothes donations for the clothes closet. Jamie and Kylie are college students from the University of Hawaii at Hilo who volunteer at the center once a week for a few hours.

Neighbor

Jensen is a retired school teacher who has lived in the residential neighborhood next door for the last fifteen-years. He has come to the center for the monthly

neighborhood association meeting that is held in one of the large meeting rooms at the center in the evening.

Visiting Professional

Cora is a local lawyer who has come to the center to work with the staff on Corrine's case. Other professionals who have arrived include a social worker from Child Welfare Services, and a psychologist.

Children's Justice Center Staff

Kathy is a member of the Children's Justice Center Staff. She will be running a training session for other professionals in the afternoon, so she is spending the morning preparing for their arrival.

User Journeys

Once the characters are created, the next step is to map their journey through the building. This shows how different building user types inhabit the different parts of the building. For example, the staff and visiting professionals make use of almost the entirety of the facility, while visitors tend to stay within one section. Mapping the character's journey also allows one to experience that character's visit.

Family visiting the Children's Justice Center

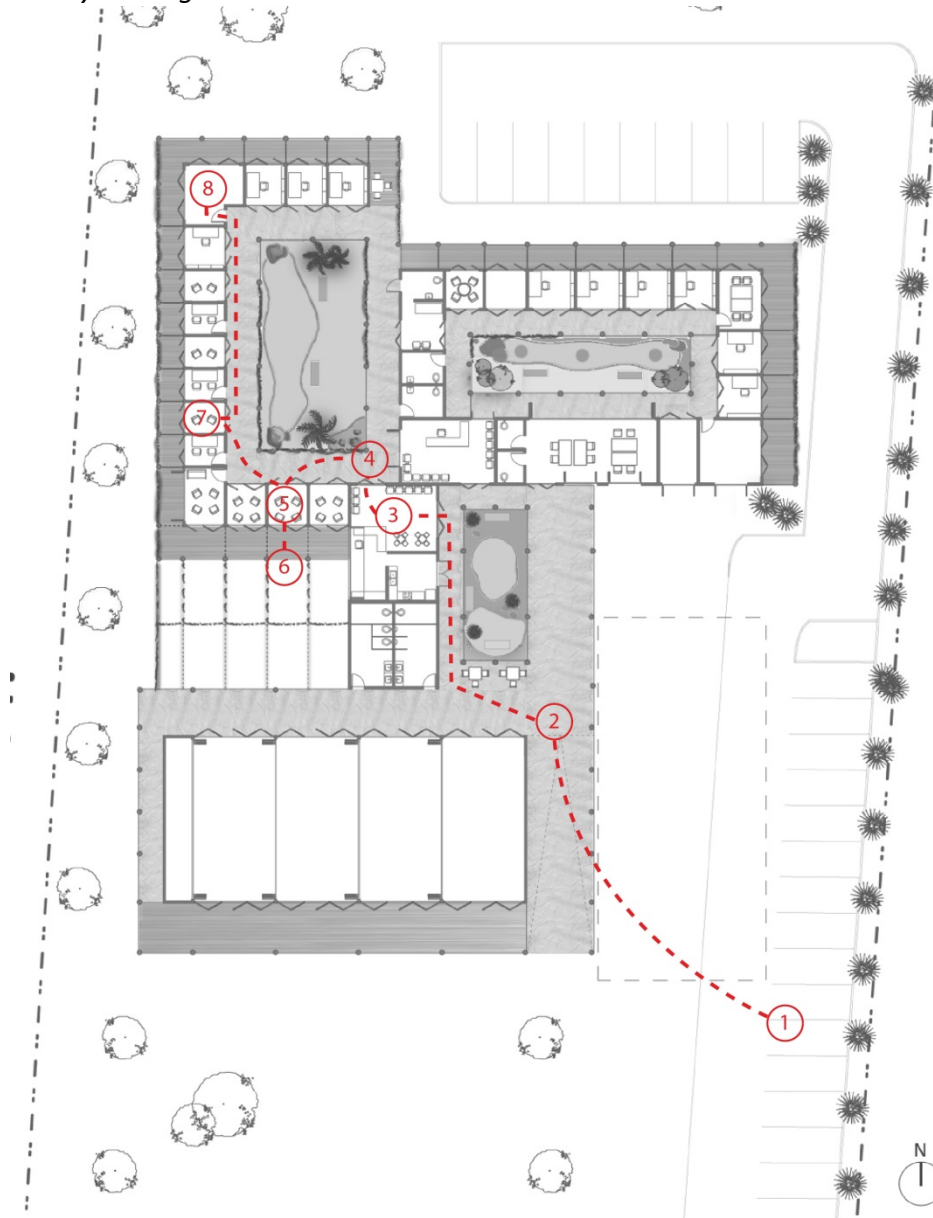


Figure 8.7: Family's Journey

1) Parking

The parking for the center is located to the east end of the site. The parking area will be paved in a grass embedded landscape paver system, to allow stormwater to drain through the planted grass, rather than pooling on concrete or asphalt. This will also reduce heat as both these systems allow for the growth of grass, rather than impermeable pavement that reflects heat. The systems protect the roots of the grass from being destroyed by vehicles, keeping the parking area from becoming a

giant mud or dirt patch. This type of system has been used in Hilo before. For example: the University of Hawai'i at Hilo uses a similar system where they are parking machinery for construction.

2) Entry Courtyard

The multiple entry spaces from the program developed into a single entry courtyard. The reception and waiting spaces of the building's occupants are accessed from this space. Branching out from the courtyard is a pergola that welcomes visitors from the parking lot and guides them to the entry.

3) CJC Reception

The entry reception is a space that is used very briefly by families visiting the center. It is a transition space. Families arrive in reception to check in with the receptionist, and to wait briefly before being led to a private meeting/ waiting room. Unlike waiting rooms in other professional offices, visitors spend very little time there.

4) Children's Justice Center Courtyard



Figure 8.8: Left: Children's Justice Center Courtyard

Source (top): Coldwell Banker. *Your wrap around covered lanai.* Photograph. Coldwell Banker.

http://www.daylum.com/HawaiiRealEstate/index.php?option=com_koalistsings&controller=koalist&task=viewproptdetails&mls_num=277396.

Source (bottom): Backyard-Design-Ideas.com, Photograph. <http://www.backyard-design-ideas.com/backyard-water-feature.html>

The Children's Justice Center Courtyard has two functions. While families will most likely not spend much time, if any, in the courtyard, it acts as a pleasant

backdrop as the family moves from space to space as needed. The second function is to act as a sound buffer. The sound from the water features flowing into the fish pond helps to mask sounds as people have conversations both indoors and out.

5) Family Room



Figure 8.9: Family rooms view out onto private gardens.

Source (top): Ten Ball Labs, LLC, *Chalkboard Wall Paint*, Photograph, Shcoon, <http://www.shcoon.com/chalkboard-wall-paint-233>.

Source (bottom): Commercial Doors Direct, Photograph, <http://www.commercialdoorsdirect.com/counter-service.html>

The family rooms take the place of separate waiting and meeting rooms for the Children's Justice Center. Instead of having families spend the bulk of their time in a busy waiting room, they are instead escorted into a private room that will be theirs for their entire visit. The rooms each look out onto a family garden, which are accessed through opening glass walls.

The interior walls of the room are painted with different colored chalkboard paint, which can be used for children to draw on while they wait or for note taking during meetings. Rather than have static rooms with a central meeting table, the furniture in the room will incorporate built-in-tables and can be moved into the configurations needed for meetings.

6) Family Garden



Figure 8.10: View of family rooms from gardens.

The family gardens are made up of two spaces: the covered waiting lanai and the private garden. The purpose of these gardens, besides giving a private outdoor space for families to relax while they wait, is to give other family members a place to wait while a meeting is taking place. The glass wall allows for parents to keep an eye on their children if they do not want their children under the watchful eye of Children's Justice Center staff.

The waiting lanais have wooden roll down doors, allowing the lanais to be completely closed off from other family rooms. This is an option for families who want to watch over their children themselves, instead of having the children be watched by Children's Justice Center staff. The roll down doors will also be painted with chalkboard paint to allow children to draw while they wait.

The private gardens are small yards for children to run around and play in as they wait for their families. Each one can be closed off with rolling privacy screens. The screens are wood trellis with a planter at the bottom to create pleasant miniature gardens, where the breeze can pass through the plants and natural light can shine between the leaves, rather than large opaque prison-like walls.

7) Interview Room

There are three interview rooms, scaled and decorated depending on the age of the child to be interviewed. The three age groups are pre-school, elementary, and teenage. Green privacy screens along the courtyard and private lanais allow daylight to filter through the leaves of the plants in a dappled effect similar to light through a canopy of trees. This helps keep children from being distracted from outside stimulus, while still allowing them to interact with nature.

One of the main concerns is maintaining the acoustic quality in the room as all of the interviews are recorded. Area rugs near the seating and quilts on the wall help to achieve this, while also making the room more comfortable.



Figure 8.11: Rugs and large cushions on the floor create comfortable seating for young children.

Top Right: Colorful quilts help the sound quality of the room while making the room feel more comfortable.

Bottom Right: Daylight through a green screen creates a dappled effect.

Source (Bottom): Yukinori Okamura. "Untitled." Photograph. Archdaily.com, "Green Screen House / Hideo Kumaki Architect Office," *ArchDaily*, August 23, 2013, <http://www.archdaily.com/421607/green-screen-house-hideo-kumaki-architect-office/>

8) Tranquility Room

The tranquility rooms resemble recreation rooms, with comfortable couches and seating. The purpose of the rooms are to create quiet calming spaces that staff and visitors can visit when they need to take a minute to decompress, and take a break from their situation. Each tranquility room also includes a private lanai.

Volunteers' Experience

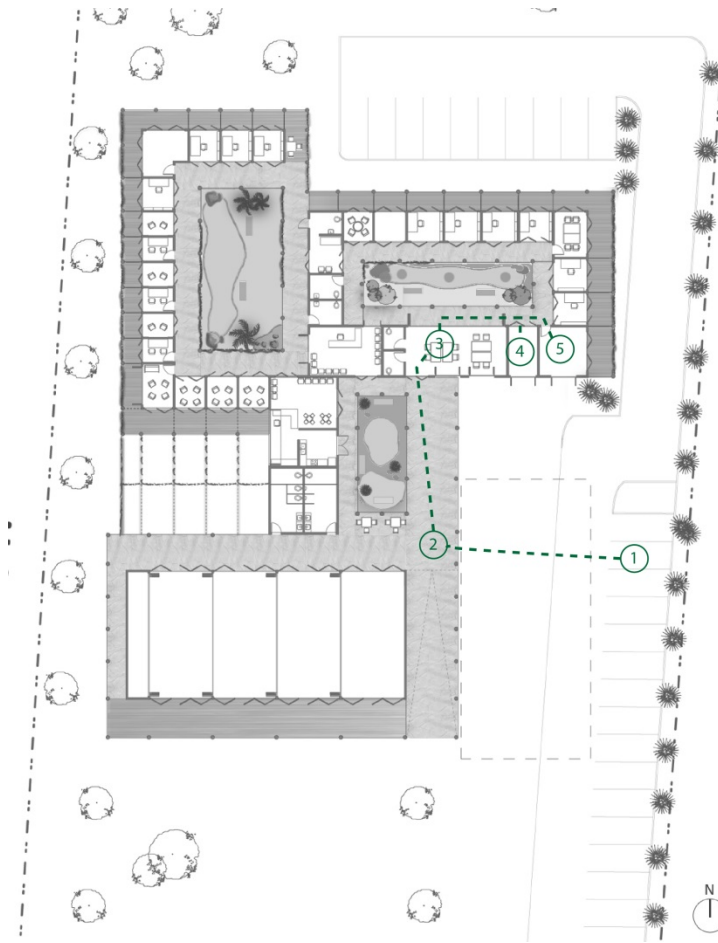


Figure 8.12: Volunteer's Journey

- 1) Parking
- 2) Entry Courtyard
- 3) Friends of Children's Justice Center Work Room

The Friends workroom needs to have space for four work tables. These work tables are for the volunteers who come in to help with processing donations and other such tasks. Visitors enter the workroom directly from the entry courtyard as there is no need for a reception or waiting room.

- 4) Clothes Closet

The clothes closet is, in essence a large walk-in closet. The room is used for storing the clothes and other donations that are brought in to the center.

- 5) Tranquility Room

Visiting Professional's Experience

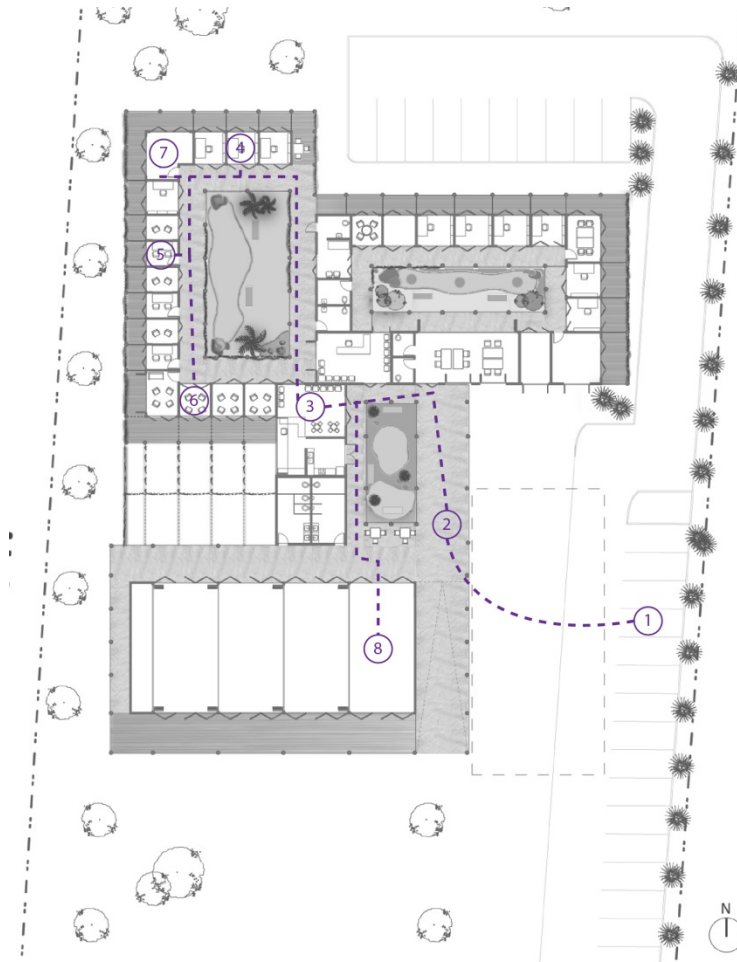


Figure 8.13: Visiting Professional's Journey

- 1) Parking
- 2) Entry Courtyard
- 3) Children's Justice Center Reception
- 4) Temporary Office

Four offices were provided in the original program for the Children's Justice Center, though only two are needed at present, to have room for future expansion and additional staff. Until that time the rooms will act as temporary office spaces for the visiting professionals who will be coming to the center. These temporary offices allow for a quiet private place to work for short or extended periods of time.

5) Observation Room

The observation rooms each serve a single interview room, so if needed multiple interviews can be conducted at once. The rooms house recording equipment and a one-way window into the adjoining interview room. Along the window is a counter with stools for staff and professionals to sit and take notes as they observe the interview taking place.

6) Family Room

7) Tranquility Room

8) Large Meeting Room

The large meeting rooms are separated by opaque sliding doors that can be pushed back to create as large a space as needed for meetings and conferences. The westernmost conference room has similar sliding doors that open into the furniture storage room. All of the furniture for the meeting rooms must be stackable and maneuverable to allow people to configure the rooms as they are needed for their meetings.

Children's Justice Center Staff's Experience

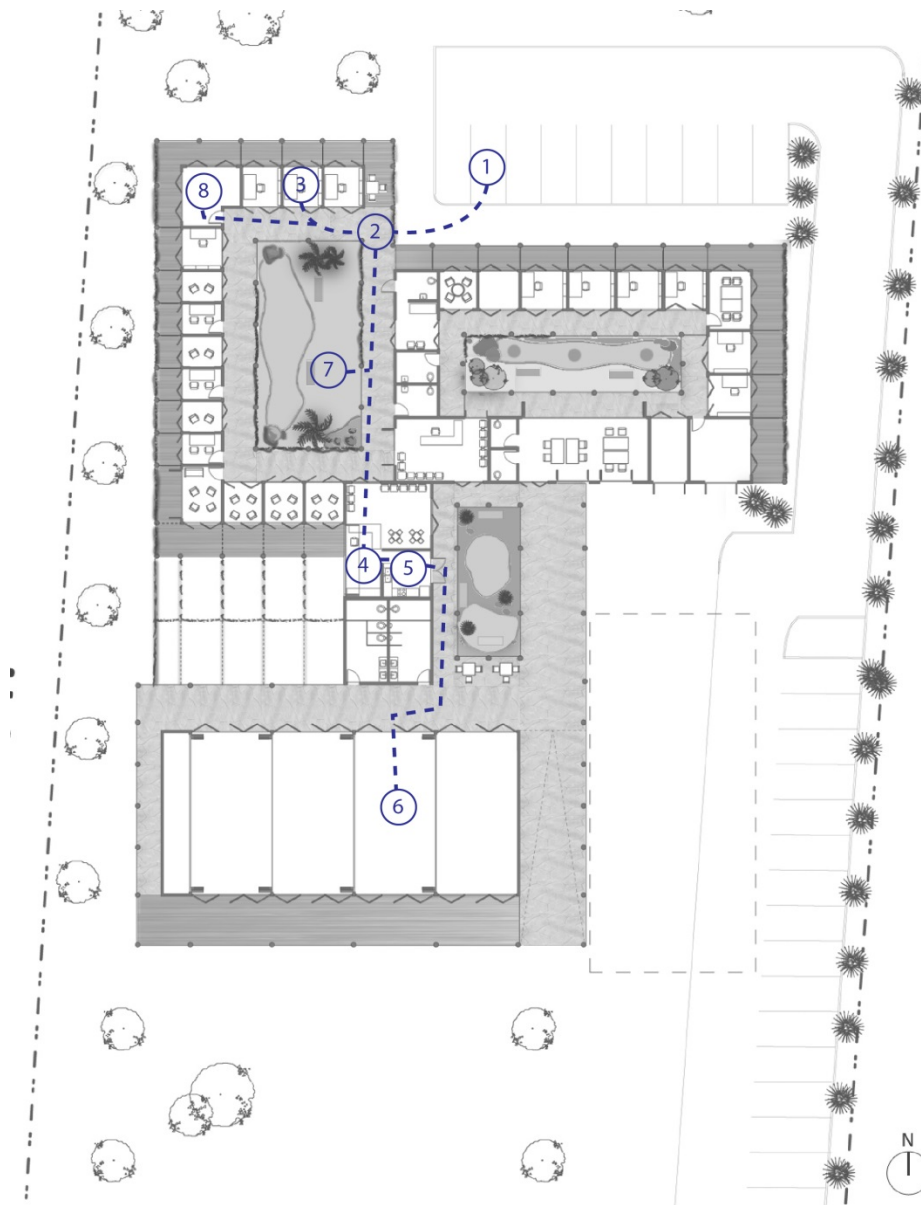


Figure 8.14: Children's Justice Center Staff's Journey

- 1) Staff Parking
- 2) Children's Justice Center Courtyard
- 3) Office
- 4) Work/ Copy/ Child Watch Room

The workroom is where the Children's Justice Center houses their large printers, and stores their office supplies and hard-copy files. The room can be utilized as a child-watch facility as it has an open glass wall looking out onto the

family gardens. This allows staff to watch the children of all the families at the center at once, from a single position, without needing a separate waiting room specifically for the children.

5) Kitchen

The kitchen serves both the Children's Justice Center and the conference rooms. It is a full-size kitchen to allow for the preparation of refreshments for those attending meetings, as well as families that visit the center. The kitchen also allows for staff to cook or heat their meals as they desire.

6) Conference Room

7) Children's Justice Center Courtyard

8) Tranquility Room

Neighbor's Experience

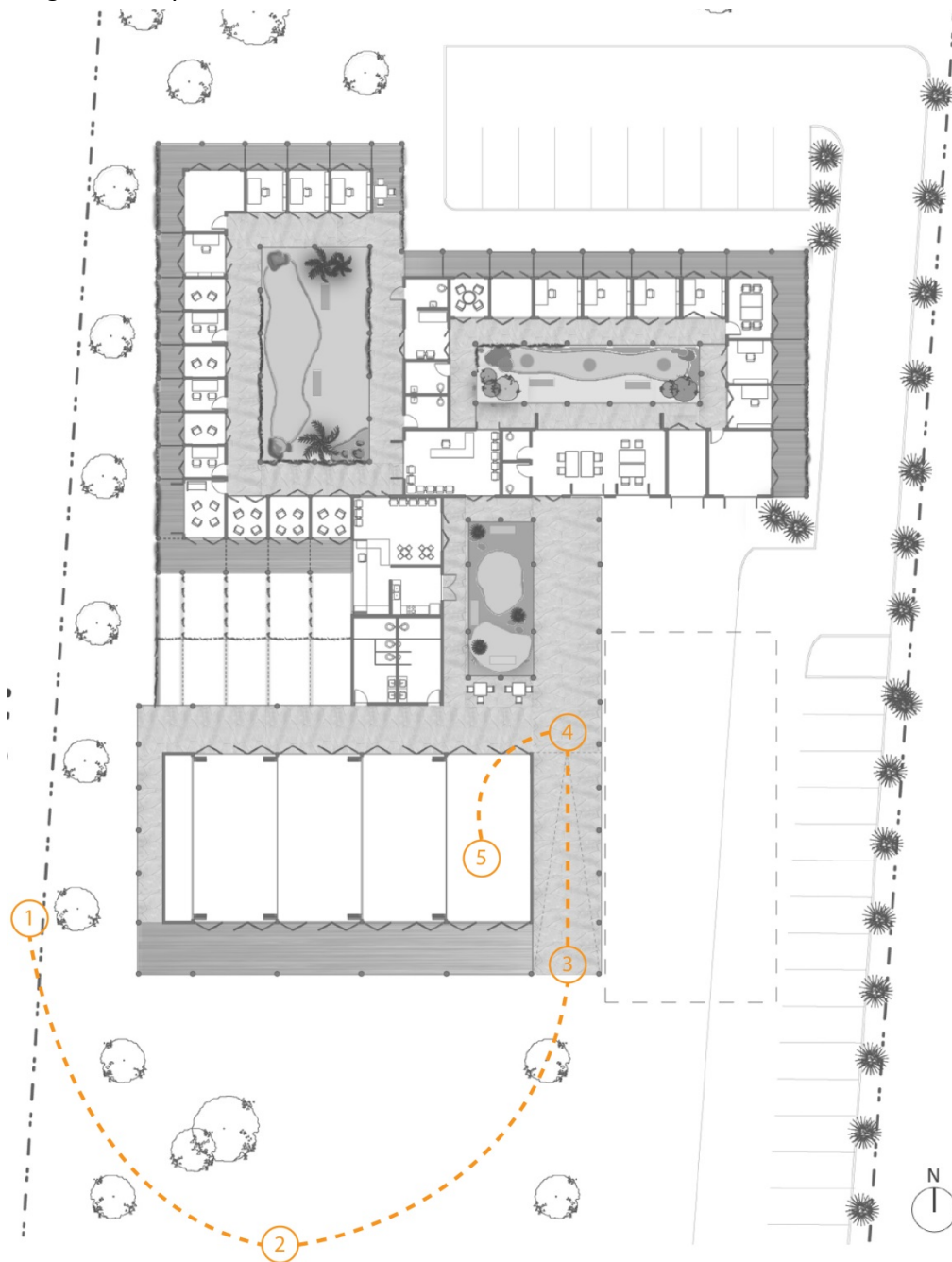


Figure 8.15: Neighbor's Journey

1) Enters Site on Foot from Neighborhood

Neighbors who use the center for meetings, or to enjoy the front park space, can simply walk across Waiau Street from the residential neighborhood to reach the center. Waiau Street is a calm street with little traffic so is safe for pedestrians to cross to the center. As visitors to the center will access the site

from Wainuenue Avenue, there should be little impact to traffic into the neighborhood.

2) Front Park

The front of the center includes a large park space for visitors to enjoy.

The park can also act as an outdoor reception space in conjunction with the conference room. It can act as a large open space for children in the area to play in.

3) Entry Pergola

The entry pergola is a long arcade of 'ohia columns supporting an overhead trellis. The pergola marks the way for visitors to find the entry courtyard. Part of the pergola is covered by the roof overhang to protect visitors from getting wet on rainy days. Entering through the pergola allows visitors to have direct interaction with nature, before they physically arrive into the facility.

4) Entry Courtyard

5) Large Meeting Room

The Big Question: Cost

The building users have been identified, and the characters' journeys through the building have been mapped and their experiences visualized. This just leaves the big question: what is it going to cost to build the building? While it is impossible to know what the exact building cost would be at this stage, it is possible to give a ballpark initial estimate of the building cost based on type of construction, and size of the proposed building.

As this project is a one-story wood-frame office building, the value used for this estimate was taken by combining the ballpark cost estimate for wood-frame construction in Hawai'i per square foot, the cost of the window wall systems that are used in the project, and the material for the planted privacy screens. The window-walls and the trellises are non-standard elements that would not be counted in the ballpark

estimate. For the purposes of this project, the cost estimate does not include the shipping cost for the window wall systems, the labor cost for assembling the privacy screens, or the landscaping. The cost calculations can be found in Appendix C.

The estimates for the unit costs of the window walls were taken from the Online Quoter on the Panoramic Doors website⁴³² and the unit price for the privacy screens were taken by using the unit cost of cedar privacy wood lattice on the Lowes website⁴³³.

The ballpark cost estimate for wood-frame construction was taken by comparing the indicative construction cost for prime offices in Honolulu provided in Rider Levett Bucknall's US Quarterly Construction Cost Report; and the ballpark estimates given by two professionals who work in the Hawai'i construction industry, one in Hilo and one in Honolulu. Rider Levett Bucknall's quarterly report sets the indicative construction cost of offices in Honolulu at \$255/sq.ft. on the low end, and \$470/sq.ft. at the high end⁴³⁴. As this project is a one-story wood-frame office building, it would most likely fall on the low end, or in the middle of this range. The professional in Honolulu gave a ballpark estimate of \$200/ sq.ft., and the professional in Hilo gave an estimate of \$240/ sq.ft as the turnkey cost for wood-frame construction. To be on the conservative side, this project is going to use \$255/sq.ft. for the estimate.

After applying these cost factors to the proposed building, the final cost estimation total a little over \$2.74 million. This is, of course, a very rough, preliminary cost estimation. If this project is to ever go further towards being built, a more thorough cost estimation will need to be done. The calculations for this estimate can be found in Appendix C.

⁴³² Panoramic Doors, <http://panoramicdoors.com/>.

⁴³³ Lowes, "Wood Lattice," http://www.lowes.com/Fencing/Lattice/Wood-Lattice/_/N-1z0wg4j/pl?Ns=p_product_qty_sales_dollar|1#! (accessed April 12, 2014).

⁴³⁴ Rider Levitt Bucknall, *USA Report: Quarterly Construction Cost Report Fourth Quarter 2014*, (Rider Levitt Bucknall, December 2014), <http://rlb.com/wp-content/uploads/2014/12/rlb-usa-report-fourth-quarter-2014.pdf>, 4.

CONCLUSION

There were two overall goals for this project. The first was to understand what elements need to be incorporated into building design in order to ensure the psychological and physical well-being of the building users. Specifically, what elements should be incorporated into the design of a building that houses programs that help families that are at risk for child abuse. The second was to take these elements and apply them into the design of a building.

The elements were discovered through research covering a multi-disciplinary range from environmental psychology, the design of specific types of buildings, to the analysis of case studies. Studying these topics led to six design elements that need to be present in building design. These elements are: 1) a connection with nature, 2) the use of daylight, 3) a balance between encouraging social interaction and privacy, 4) security, 5) flexibility and transformability of spaces, and 6) user control of their environment. Once the elements were discovered they were incorporated into a theoretical design for an existing program that helps abused children.

For example, the building is designed such that views of the courtyard are seen from family rooms and offices, providing a link with nature. These rooms are also well lit with window-walls that let in natural light. Care has been taken to balance a concern for privacy for the children and their families, while providing flexibility to permit social interaction and collaboration between staff and visiting professionals. The vegetative and roll down screens allow visitors to control the privacy in their meeting spaces. Courtyards, the multiple sizes of meeting rooms, and the maneuverability of furniture, encourage the collaboration between professionals from different programs. These professionals can transform the configurations of their meeting spaces as needed. Security is provided through the control of users circulation paths.

The building design is intended to not only serve the day-to-day functions of the Children's Justice Center, but to also serve the community in the long term through child maltreatment prevention. Child maltreatment prevention saves the United States \$104

billion every year⁴³⁵. By creating spaces that allows families and staff to work together at an optimal level through mitigating the stresses caused by the environment, and through spaces that encourages collaboration, the outcome for the children are more likely to be positive. The hope is that families who come to the center will no longer be at risk for abusive behavior, and that the behavior will not be passed on to future generations.

Another way the building could prevent child maltreatment in the future is through its public spaces. The Children's Justice Center and other organizations can use the spaces to hold seminars or workshops to help educate the public about child maltreatment and how to recognize it.

This project could be a way for the community to become aware of the prevalence of child maltreatment in the community, and how this problem can be healed. While there is still much work to be done, this project can be used as a tool for the CJC to drum up support and funding for their new facilities, so they can better serve children, families with children who have been abused, and the community. The design attempts to utilize the built environment as a healing place, enhancing the therapeutic efforts of the CJC and other service organizations dedicated to improving the lives of children and their families; and creating a comfortable and healthy workplace for the staff of those organizations.

⁴³⁵ Child Welfare Information Gateway, *Long-term Consequences of Child Abuse and Neglect*.

APPENDIX A. DEFINITIONS⁴³⁶

Child Maltreatment- Any act or series of acts of commission or omission by a parent or other caregiver

that results in harm, potential for harm, or threat of harm to a child.

Acts of Commission (Child Abuse)- deliberate or intentional words or overt actions that cause harm, potential harm, or threat of harm to a child; though harm to the child may not be the intended consequence. Physical, sexual, and psychological abuse involve acts of commission.

Acts of Omission (Child Neglect)- the failure to provide for a child's basic physical, emotional, or educational needs or to protect a child from harm or potential harm.

Physical Abuse- the intentional use of physical force against a child that results in, or has the potential to result in, physical injury.

Sexual Abuse- any completed or attempted (non-completed) sexual act, sexual contact with, or exploitation (i.e., noncontact sexual interaction) of a child by a caregiver.

Psychological Abuse- Intentional caregiver behavior (i.e. act of commission) that conveys to a child that he/she is worthless, flawed, unloved, unwanted, endangered, or valued only in meeting another's needs.

⁴³⁶ Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, *Child Maltreatment Surveillance: Uniform Definitions for Public Health and Recommended Data Elements*, By Rebecca T. Leeb, et. al., (Atlanta, GA: National Center for Injury Prevention and Control, January 2008), <https://www.childwelfare.gov/pubs/factsheets/whatiscan.cfm> (accessed February, 4, 2014).

APPENDIX B. BUILDING PROGRAM CHART

Title	Space	Sub-spaces/ Description	#	Area (sq. ft.)	Total Area	# of People	Amount of Use	Length of Use	Level of Privacy	Natural Light
Children's Justice Center										
Welcome	Entry		1	100	100	10	Daily	1-10 min.	Public	yes
Welcome	Reception		1	100	100	10	Daily	1-30 min., 8 hrs	Private	yes
		1 work station								
Concentrate	Office Spaces		4	100	400	2	Daily	8-10 hrs	Private	yes
		2 permanent work stations								
		2 temp./ future								
Serve	Copy/ Storage/ Work Room	File Storage, Office Supplies, Copier	1	20	20		Daily/ Weekly	5-30 min.		no
Collaborate	Shared Work Room/ Meeting Room		1			20	Daily/ Weekly	1-8 hrs	Semi-Private	yes
Relax	Tranquility Space		1	200	200	10	Daily	10 min - 1 hr	Semi-Private	yes
		Interior meditation/ seating		100						
		Exterior Lanai		100						
		Private Garden								
Focus/ Collaborate	Family Waiting/ Work Rooms		4	180	720	10	Daily/ Weekly	1-2 hrs	Private	yes
		4 meeting rooms		100						
		private waiting lanais		80						
		private waiting gardens								
Listen	Interview Rooms		3	80	240	2	?	1-2 hrs	Extremely	?
		young child								
		child								
		teenager								
Listen	Observation Rooms		3	100	300	5	?	1-2 hrs	Extremely	no
Collaborate	Conference Room	Meeting/ Training Room	1	3200	3200	100	Monthly		Public	yes
Serve	Kitchen	Also serves conference room	1	100	100	2, 4	Daily		Semi-Private	
		Full size								
Serve	Public Restrooms		2	200	400	3	Daily	-	Public	no
Serve	Staff Restrooms		2	25	50	1	Daily	-	Private	no
		1 restroom shared w/ YWCA for med room								
Serve	Furniture Storage	Serves conference/meeting rooms	1	400	400		Weekly/ Monthly	20 min		no

Title	Space	Sub-spaces/ Description	#	Area (sq. ft.)	Total Area	# of People	Amount of Use	Length of Use	Level of Privacy	Natural Light
YWCA Crisis Center										
Welcome	Entry		N/A	N/A			Daily		Public	yes
Welcome	Waiting Area		1	100	100	15	Daily	10 min - 2 hrs	Semi-Private	yes
		Waiting Lanai?								
Concentrate	Office Space		4	100	400	4	Daily	8 hrs	Private	yes
Serve	Storage Space		1	10	10		Weekly	1-5min.		no
Collaborate	Meeting Room		1	50	50	6	Daily/ Weekly		Private	yes
		small						1-8 hrs		
Heal	Medical Exam Room		1	100	100	4	Weekly/ Monthly		Extremely	no
Heal/ Serve	Medical/ Staff Restroom		N/A			1-2	Daily		Extremely	no
		used for staff when not in use								
Serve	Public Restrooms		2	200	400	3	Daily		Public	no
Heal	Play Therapy Room		1	200	200	2	Weekly	1-3 hours	Private	
Friends of the Children's Justice Center										
Welcome	Entry		1	100	100	10 - 20	Daily	1 - 10 min	Public	yes
Concentrate	Office Space		2	100	200	4	Daily	1 - 8 hrs	Private	yes
Collaborate/ Focus	Volunteer Work Room		1	600	600	15 - 20	Daily/ Weekly	1 - 8 hrs	Semi-Private	yes
		3 work stations		80						
		large work desk								
Serve	Clothes Closet		1	100	100	4	Weekly/ Monthly		Semi-Private	no
Serve	Staff Restroom	hold clothes for donation	1	25	25	1	Daily		Private	no

APPENDIX C. COST ESTIMATE CALCULATION

Cost of Window Wall System					
Type	Amount	Height (ft)	Width (ft)	Unit Cost	Cost
8x8	4	8	8	\$5,496.24	\$ 21,984.96
8x9	32	8	9	\$5,614.84	\$ 179,674.88
10x19	8	10	19	\$12,281.68	\$ 98,253.44
8x12	1	8	12	\$8,022.98	\$ 8,022.98
8x7	16	8	7	\$4,022.85	\$ 64,365.60
8x18	1	8	18	\$11,444.22	\$ 11,444.22
8x6	1	8	6	\$3,904.27	\$ 3,904.27
8x30	1	8	30	\$16,931.86	\$ 16,931.86
10x38	4	10	38	\$23,217.17	\$ 92,868.68
				Total	\$ 497,450.89
Note: Used Panoramic Doors online price quote					

Material Cost of Green Screen					
Type		Height (ft)	Width (ft)		Cost
Wood Lattice		8	269	\$50/ 4' width	\$3,362.50
Note: Used price of Cedar Square Wood Lattice from Lowes.com					

Cost of Building					
Type	Area (sq.ft.)	Cost/ sq.ft.	Cost		
Office Building, Wood-frame	8,784	255	\$ 2,239,920.00		
Note: Used Indicative Construction Cost for Prime Offices in Ryder Levett Bucknall's 2014 Fourth Quarter Construction Cost Report					

Cost Estimate:	\$ 2,740,733.39
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